DIVX 10

USER GUIDE

DivX 10 User Guide

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CONVERTER

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CONVERTER

Welcome to the DivX Converter user guide. DivX Converter is an easy way to convert and customize your digital videos into high-quality, highly compressed DivX® or MKV videos on a Windows or Mac computer. DivX Converter continues to focus on our simple 'one step' conversion, while making it even easier to customize your video settings. You can limit your file size, remove audio tracks, and set your video bitrate all in a few short clicks of a button.

We've continued to extend support to new formats in DivX 10 so you'll have access to all profiles and presets absolutely free! This means it costs nothing to encode your high definition videos into the DivX, MKV, or MP4 format in just one easy step. To add support for inputting MPEG-2 videos you can purchase the MPEG-2/DVD Plug-in for DivX Converter.

The key advantage of DivX video over other media formats is the ability to play your videos beyond your computer. DivX Converter's DivX, DivX Plus, and DivX HEVC output profiles let you optimize digital video to be played on any computer or a DivX Certified® device, including DVD players, PlayStation® 3, HDTVs and even mobile phones. With its new MP4 output presets, you can create video that will be compatible with mobile devices like iPhone or iPad.

Please note that to play DivX HEVC, DivX Plus HD, or DivX HD files on a DivX Certified device, your device will require the appropriate DivX certification.

In this guide you will learn how to:

- Convert your videos to DivX, DivX Plus, DivX HEVC, or MP4 formats
- Combine multiple videos into a single DivX file
- Tweak your file settings, including video profile, resolution, output file size and encoding bitrate to customize your videos
- Configure multi channel audio output for a surround sound experience with audio pass through* (when supported)

Let's get started...

DIVX CONVERTER PROFILES & PRESETS

With your videos in the DivX format, you can play them on your PC/Mac, your TV, or on the go with millions of DivX Certified devices (Blu-ray players, gaming consoles, mobile phones, etc.) Check a list of categories and keep a look out for the DivX logo when you purchase your next consumer electronics device.

DivX Converter was designed to make every customization option accessible and visible in one interface, allowing you to change profiles or presets, combine files and access advanced features with a click of a button. We continue to use H.264 video and AAC audio for high definition digital video in our DivX Plus HD profile and you'll be able to continue enjoying stunning HD video the way it was meant to be seen without sacrificing speed or performance. New in DivX 10 is the ability to create DivX HEVC videos, the newest standard in high quality video compression.

The DivX Converter has five DivX profiles and two MP4 presets. Choose the DivX profile that best matches the device on which you expect to play your DivX video. Choose a MP4 preset for playback on other mobile devices.

Options include:

- DivX HEVC
- DivX Plus HD (e.g. DivX Plus HD Certified Blu-ray players)
- High Definition 1080p (e.g. DVD Players, multimedia storage devices)
- High Definition 720p (e.g. DVD Players)
- Home Theater (e.g. DVD Players, Tablets)
- Mobile (e.g. Smart phones, personal multimedia players)
- MP4 iPhone (for iPhone)
- MP4 iPad (for iPad)

The following table defines each of the official DivX profiles and MP4 presets supported by Converter.
See more technical specifications for official DivX profiles.

	DivX HEVC 4K	DivX HEVC 1080p	DivX HEVC 720p	DivX Plus 4K	DivX Plus HD	HD 1080p	HD 720p	Home Theater	Mobile	iPad MP4	iPhone MP4
File Container											
Max File Size	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited	4 GB	4 GB	4 GB	Unlimited	Unlimited
File Extension	MKV	MKV	MKV	MKV	MKV	DIVX	DIVX	DIVX	DIVX	MP4	MP4
Video											
Codec	H.265	H.265	H.265	H.265	H.264	DivX 3,4,5,6	DivX 3,4,5,6	DivX 3,4,5,6	DivX 3,4,5,6	H.264	H.264
Maximum Resolution	3840x2160	1920x1080	1280x720	3840x2160	1920x1080	1920x1080	1280x720	720x480 (NTSC) 720x576 (PAL)	320x240	1280x720	640x480
Frame Rate	<60 fps	<60 fps	<30 fps	<30 fps	< 30fps @1080p < 30fps @720p	30fps @1080p 60fps @720p	30fps	30fps (NTSC) 25fps (PAL)	30fps	<30 fps	<30 fps
Pixel Aspect Ratio	Square(1:1)	Square(1:1)	Square(1:1)	Square(1:1)	All values specified in Table E-1 of ITU H.264 spec	Standard PAR (1:1, 10:11, 40:33, 12:11, 16:11)	Standard PAR (1:1, 10:11, 40:33, 12:11, 16:11)	Standard PAR (1:1, 10:11, 40:33, 12:11, 16:11)	Square (1:1)	Standard PAR (1:1, 10:11, 40:33, 12:11, 16:11, 16:9)	Standard PAR (1:1, 10:11, 40:33, 12:11, 16:11, 16:9)
Maximum Average Bitrate	40 Mbps	12 Mbps	6 Mbps	40 Mbps	20 Mbps	20000 kbps	8000 kbps	4000 kbps	600 kbps	8000 kbps	4000 kbps
Audio											
# of streams	Up to 8	Up to 8	Up to 8	Up to 8	Up to 8	Up to 8	At least 1	Up to 8	At least 1	Up to 8	Up to 8
Codecs	AAC, AC3, MP3	AAC, AC3, MP3	AAC, AC3, MP3	AAC, AC3, Vorbis	AAC, AC3, Vorbis	AAC, AC3	AAC, AC3	AAC, AC3	MP3	AAC	AAC

COMBINE VIDEOS

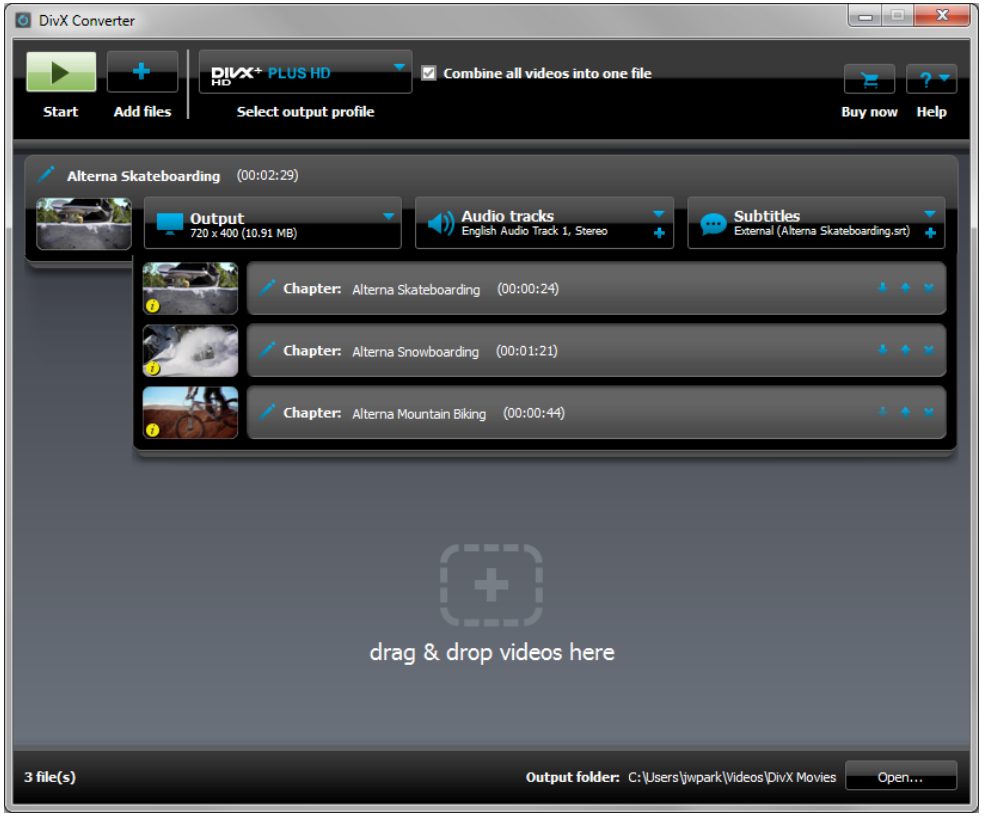
To combine more than one video into a single video, drag and drop all the videos you want to convert into DivX Converter, or add them via the “Add” button. Then, check the box next to “Combine all videos into one file”.

A few notes:

- DivX Converter does not combine .VOB files through the “combine all videos into one file” function. If you want to convert the entire VOB chain from a DVD, drag and drop the primary VOB file (usually the first or the largest in the folder) and the converter will automatically recognize all the relevant VOB files in the folder to include in the output file.

- Your final video will take the name of the first video in your list. You can rename it by clicking the Pencil icon next to the title and writing in a new name.

- Each video listed in the menu will reflect the filename of the original video. To change, rename the original file before starting to convert. Just click on the pencil icon to the left of the file name to edit it.



OUTPUT SETTINGS

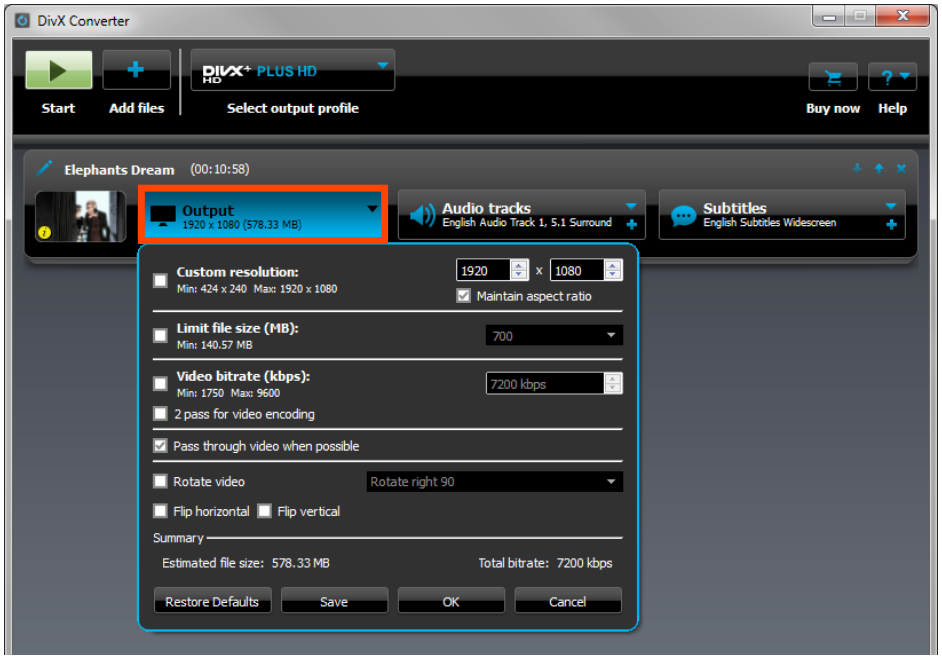
In this section, you will learn how to adjust your output to change the resolution, file size, and bitrate of your converted file.
To adjust your file settings, click on the OUTPUT, AUDIO, or SUBTITLES menus for the particular file you would like to edit.

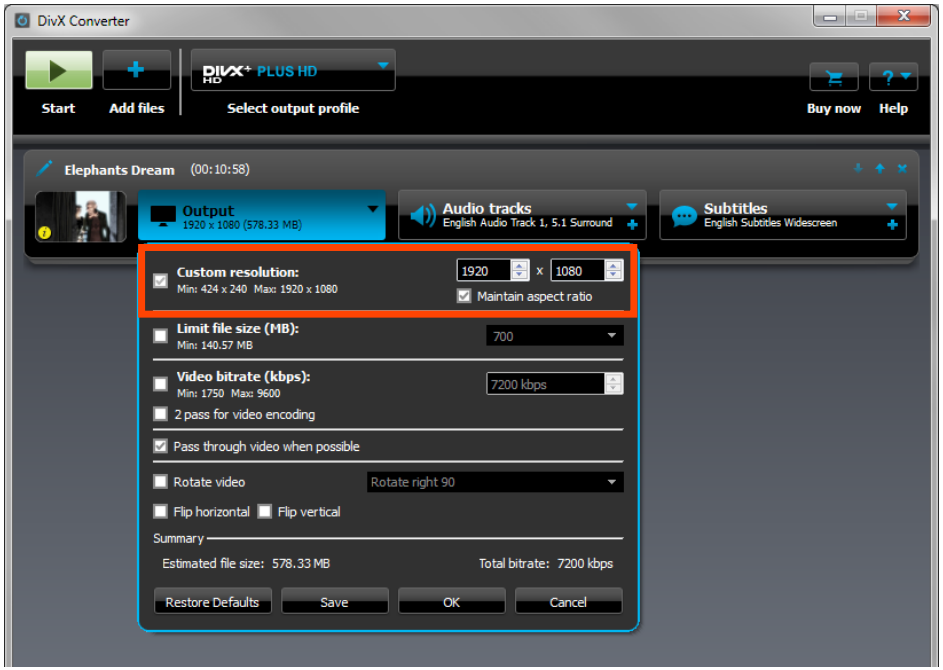
Output Menu

In addition to selecting a ready-made DivX profile or MP4 preset for your video, DivX Converter lets you customize how the video is compressed with special settings for video, audio, and subtitles. In this section you can learn what the options are for video output and how they work.

Custom Resolution

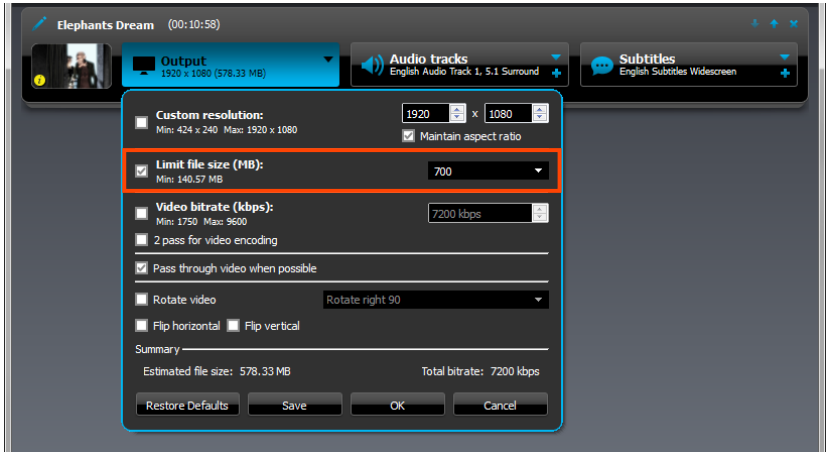
If you would like to specify a resolution other than the default provided by your output profile/preset, you can check the "Custom resolution" box in the output menu. Your resolution cannot be larger than allowed by the current output profile you have selected. For instance, if you would like to specify a resolution of 1280x576, you will need to select the DivX HD 720p output profile or higher (which supports up to 1280x720). See the table under "DivX Converter Profiles & Presets") original video. To change, rename the original file before starting to convert. Just click on the pencil icon to the left of the file name to edit it.





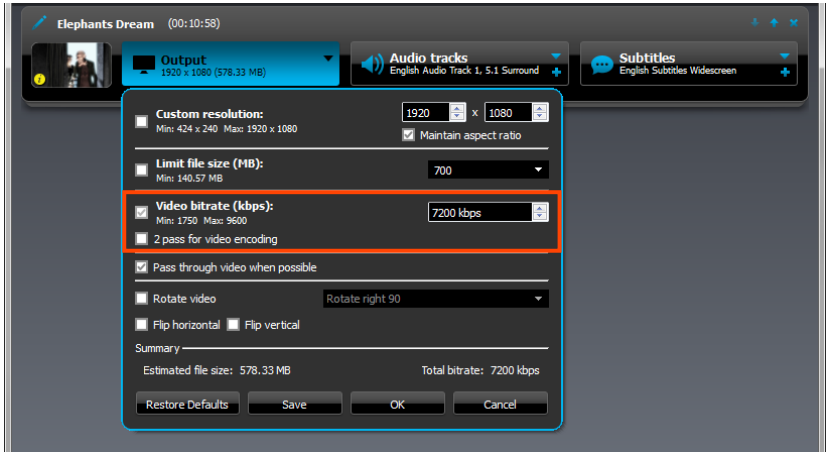
Limit File Size

This setting determines the file size of your converted video. If you plan to burn your converted DivX video onto a CD, for example, choose that option from the drop-down list.



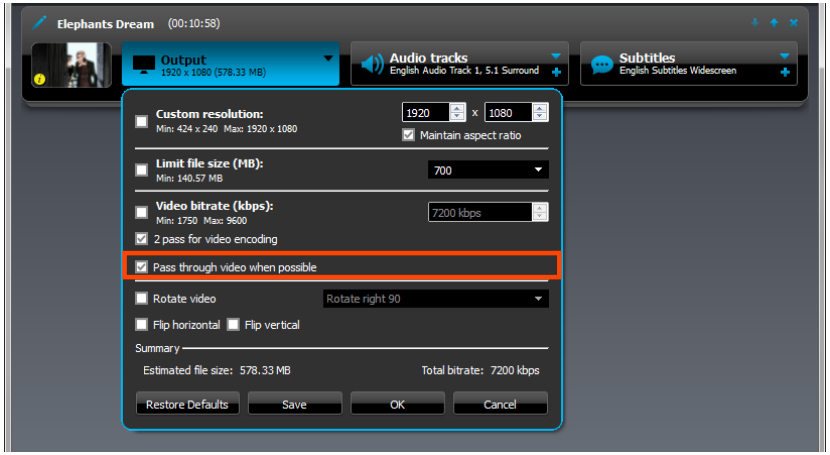
Custom Bitrate

The DivX Converter will automatically choose an appropriate bitrate for your video based on the output profile you have selected. If you would like to customize your bitrate, however, you may check the boxes for custom audio and video bitrate and make any desired changes.



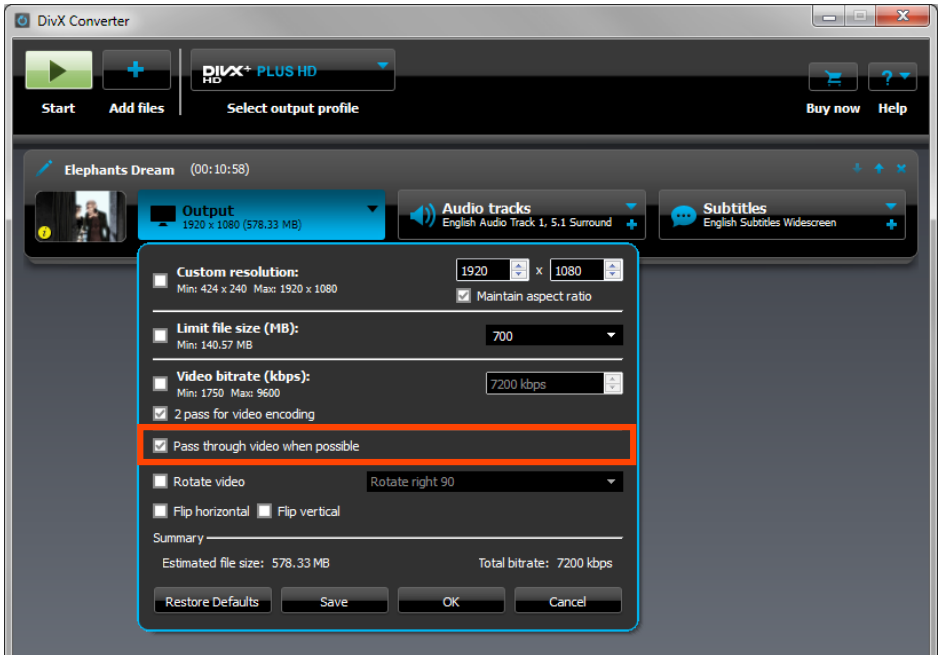
2-pass encoding

Converter allows videos to be encoded in 1-pass or 2-pass. To select this feature, just add the file to the conversion queue and check the 2-pass encoding box to enable it or un-check the box to use 1-pass encoding. To learn more about the 1-pass and 2-pass encoding options, see our Glossary.



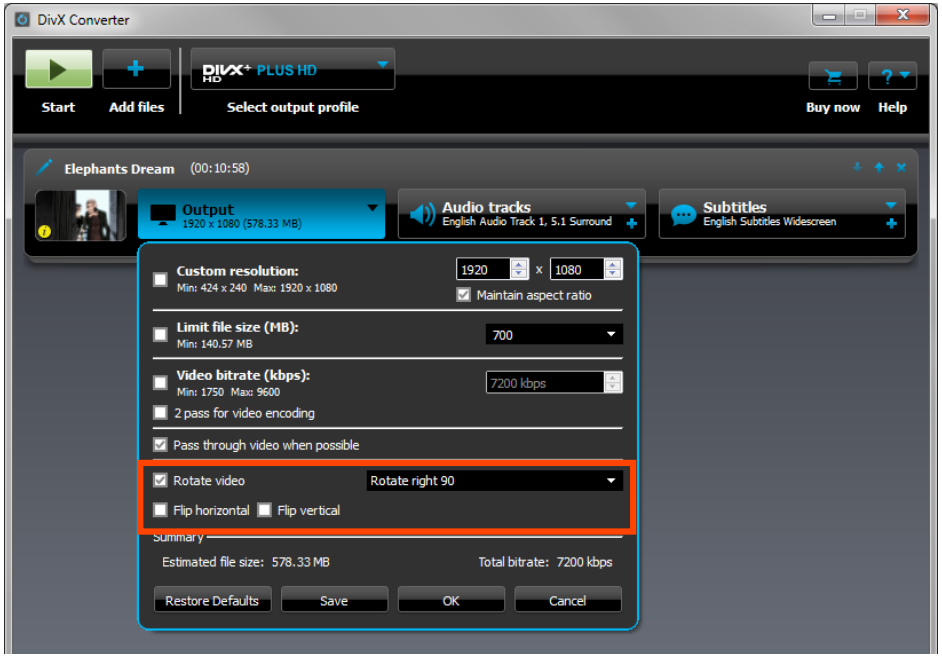
Video Pass-Through

This options lets you speed up conversion by keeping the same video stream as the source video, when it is supported. To use this feature, just check the box “Pass through video when possible” under the Output tab.



Rotate Video

This feature lets you rotate the image of your video by 90° or 180° in either direction. It is especially useful when you took video on your camera or phone in portrait orientation. To use it, just add the file to the conversion queue and click on the Output menu. Check the box “Rotate video” and choose your degree of rotation, or check the “Flip horizontal” or “Flip vertical” boxes to flip the image.

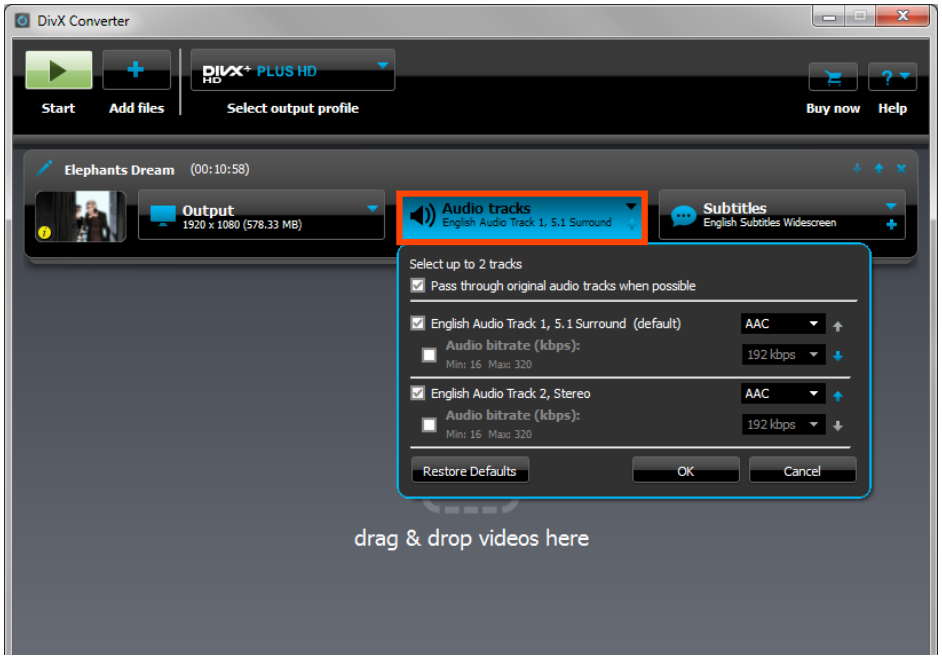


Hardware Acceleration

Hardware acceleration enables you to smoothly play high definition videos on any computer that has a DXVA capable graphics card – which means no more blocky videos or dropped frames. In addition to the DivX Plus H.264 decoder 1.2 support of DXVA hardware acceleration, all codec settings are controlled from one location in the new DivX Control Panel. use 1-pass encoding. To learn more about the 1-pass and 2-pass encoding options, see our Glossary.

Audio Tracks & Menu

If your source video has more than one audio soundtrack, DivX Converter will give you options to include them in your final converted video. Click the “Audio Tracks” dropdown menu to select or de-select the various audio tracks that are available for each indivudal video.



Select Audio Tracks

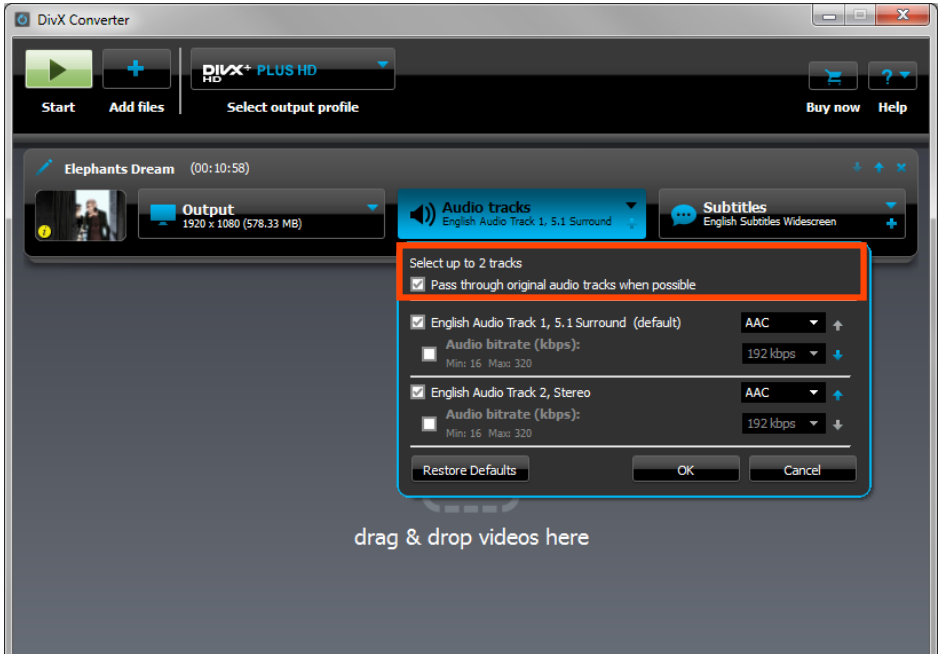
If your source video has more than one audio soundtrack, DivX Converter will give you options to include them in your final converted video. Click the “Audio Tracks” dropdown menu to select or de-select the various audio tracks that are available for each indivudal video.

Re-order Audio Tracks

This feature can be used to make a certain audio track the default for the video, or to order them how you would like them to appear when selected for playback. Just drag and drop the video file under the Audio menu, or use the up and down arrows to move them. The first track at the top of the list will be your default.

Audio Pass-Through

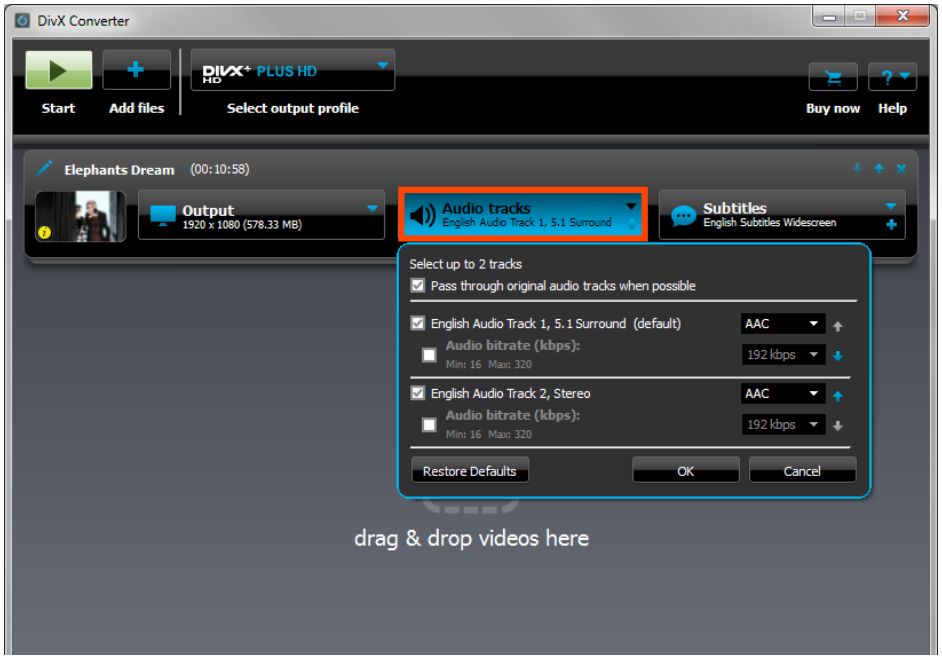
By having this box checked, you will allow DivX Converter to maintain the original source of audio for video files. This feature is only available for files with AC3 and MP3 audio using the DivX profiles; AAC audio can be passed through using the DivX Plus HD profile. It also will not work when encoding with Mobile profile or MP4 presets or when combining videos. If you wish to turn this feature off, you can uncheck the “pass through audio whenever possible”.



Output Format Selection

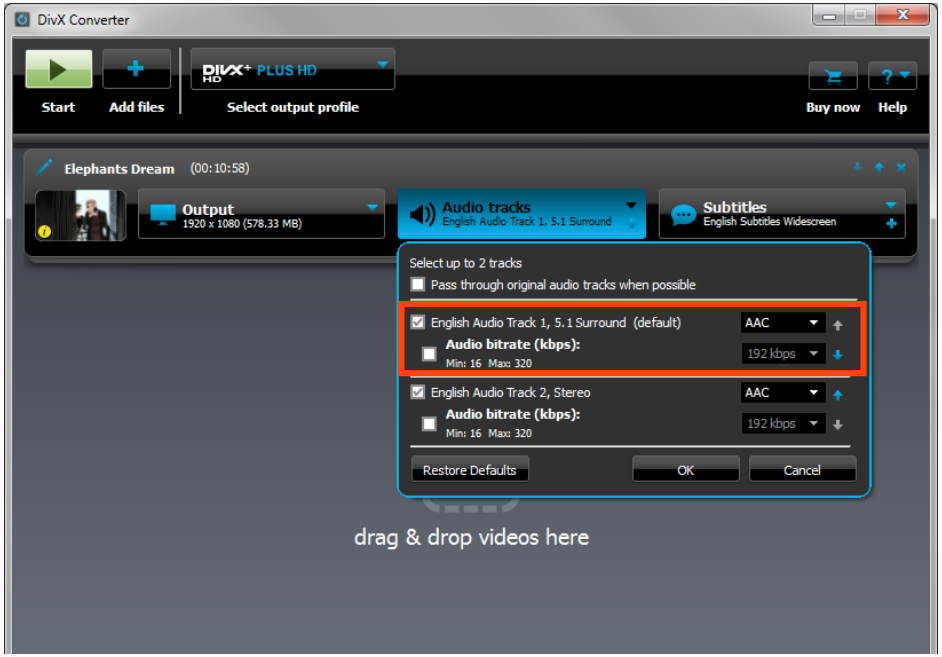
DivX Converter creates files with MP3 orAC3 audio streams for all .divx files. Under the DivX Plus HD profile, it can create files with AAC, Vorbis, or AC3 audio streams, with an .mkv extension. Lastly, files created with the iPod or iPhone presets will have AAC audio streams.

In order to get 6 channel audio in your DivX video, your input file needs to have a 6-channel supported audio format AND pass through the audio when converting the file. Supported audio formats include AC3 audio for all profiles (.divx and .mkv) and AAC if exporting to DivX Plus HD Profile (.mkv).



Custom Audio Bitrate

The DivX Converter will automatically choose an appropriate bitrate for your audio based on the output profile you have selected. If you would like to customize your bitrate, however, you may check the boxes for custom audio and video bitrate and make any desired changes.

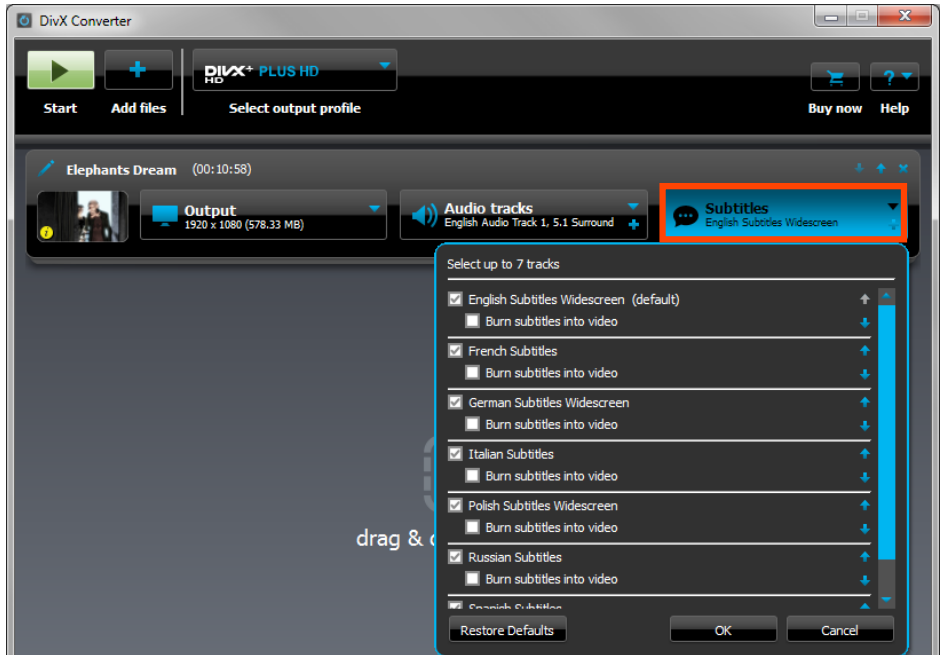


Subtitles Tracks & Menu

If your original video comes with subtitles, you can use the options in this menu to select and order the tracks. Read on to learn more about how these settings work.

Select Subtitle Tracks

If your source video has more than one subtitle track, DivX Converter will give you options to include them in your final converted video. Click on the “Subtitles” dropdown menu to select or de-select the various subtitles that are available for each individual video. If the subtitles drop-down menu is greyed out, then no subtitles are available for that video.

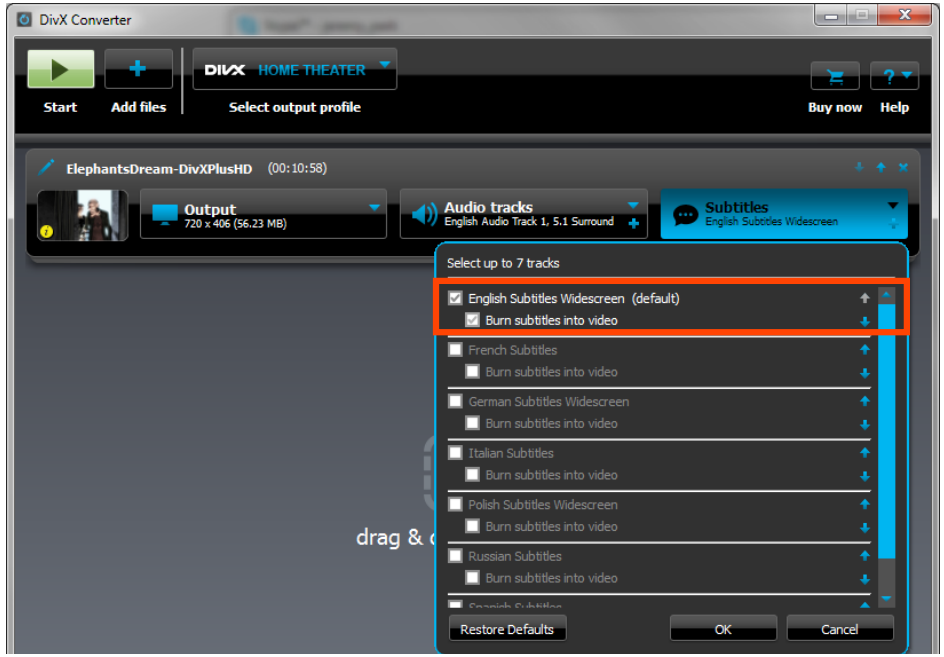


Reorder Subtitle Tracks

As with the audio tracks, you can have your favorite language’s subtitle track set as the default. Just move the tracks up and down, either by dragging and dropping or by using the up/down arrows, to set the priority and order. The first track will be your default.

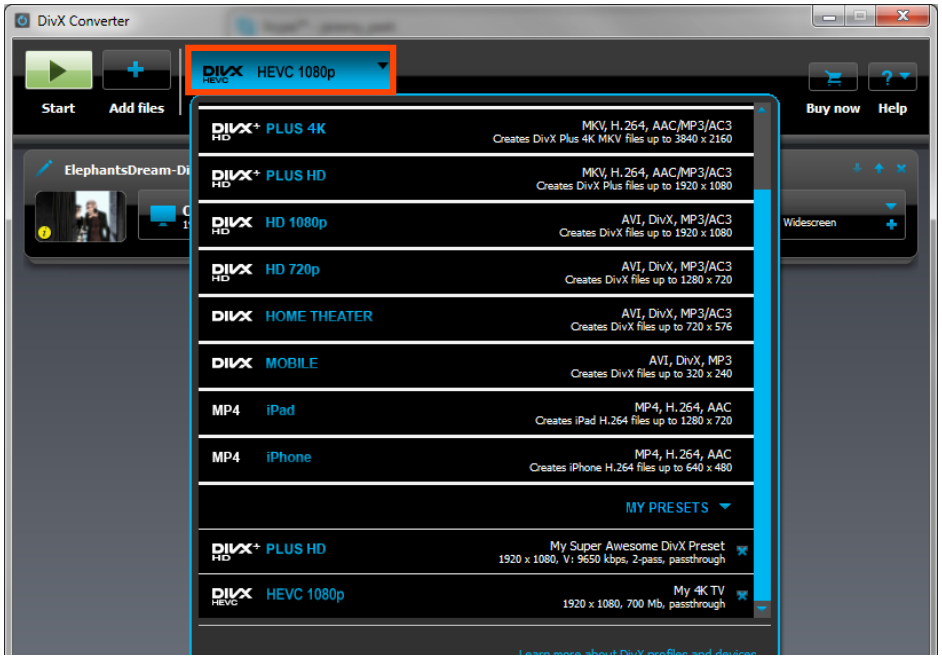
Hardcode Subtitles

This is another feature that had many requests from our community. Hard-coded subtitles means that the text becomes part of the actual image of the video, so it cannot be turned off like the regular XSUB subtitles in the DivX format. Because they are part of the image, only one subtitle track will be used. If you have multiple subtitle tracks, the first one in the list will be hard coded. To use this feature, just check “Burn subtitle into video” under the Subtitle menu.



My Presets

A feature requested by many users, now you can create your own presets based on the DivX profiles for reuse at any time. To do so, add a file to the Converter queue and choose one of the profiles or presets provided by the software. Then, make your adjustments in the Output and Audio menus and press “Save” at the bottom of the Output menu. You can name your preset so it is more easily remembered later, and click OK. To access the profile again, just go to the profiles and presets menu. It will appear under the MY PRESETS section.



Preferences

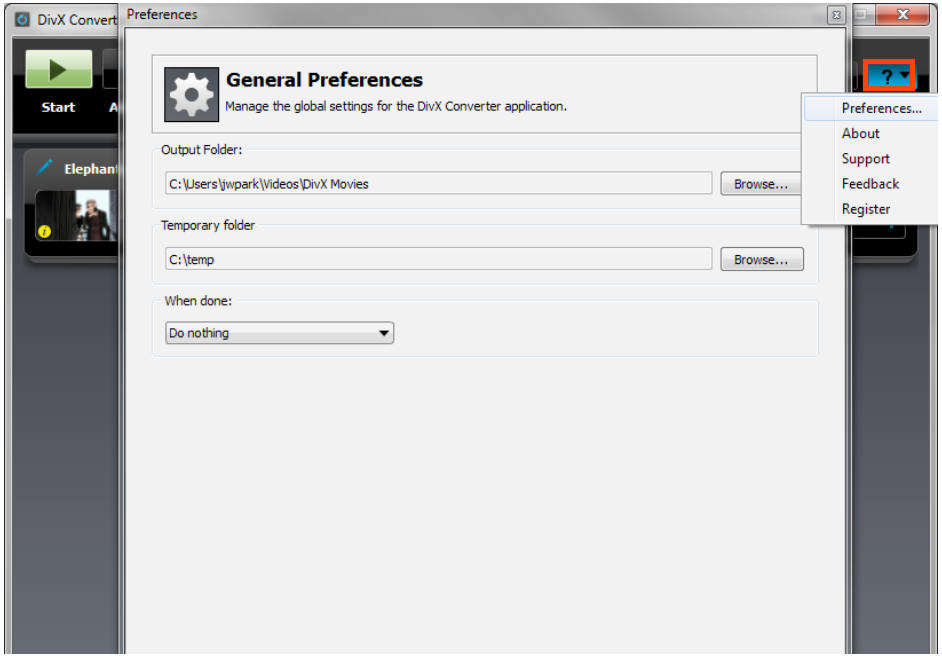
How to Find

In DivX Converter, go to the Help menu in the upper right corner of the application, under the [?] icon, and select “Preferences”.

Output Folder

This preference sets where your new video will be saved after it has been converted. To change it, go into the Preferences menu and under the Output Folder section, click the “Browse” button. Select a new location on your computer and click “OK”. By default, Converter saves the videos in the DIVX MOVIES folder, which can be found under your operating system’s default Videos folder, or from a Desktop shortcut.

To see your Output folder at any time, just click the “Open” button in the bottom right corner of Converter, next to where it shows the Output folder location.



Temp Folder

The temporary folder is where all the temp files used during the conversion process are stored. To change it, just go into the Preferences menu and under the Temp Folder section, click the “Browse” button. Select a new location on your computer and click “OK”.

What to do on shutdown:

This function lets you decide what the Converter application does after a job is completed. Sometimes conversion can take a while, especially if you have a large file or are encoding an entire batch of files. If you want the application to close or the computer to do something automatically once conversion is done because you will be away, set a default here.

- Do Nothing: Converter will stay open and will be idle
- Sleep: Converter will stay open but the computer will go into Sleep mode
- Hibernate: Converter will stay open but the computer will go into Hibernate mode
- Logout: The current user will be logged out of their session on the computer
- Shutdown: The computer will shut down, also closing Converter
- Exit Converter: Converter will be closed but the computer will remain on (pending regular system settings)

INPUT FORMATS

DivX Converter will handle most popular video file formats and convert them to the .divx, .mkv, or .mp4 format with just a click of a button. This table details the native and extended format support capabilities for the DivX Converter, including additional information on what filters you may need to optimize your file conversion.

Please note that we are constantly striving to improve our product and expand the capabilities of the software. This table reflects the minimum of supported formats; we may continue to add new formats in updates to the product. For the most current information on DivX Converter’s capabilities or to suggest ideas for new file support or functionality, please check the DivX Support site or the DivX Forums.

CONVERTING

Using DivX Converter is still as easy as 1-2-3:

STEP 1

Drag and drop your video files from any folder in your computer onto DivX Converter. Or, click on the “Add Files” [+] button and select your videos there.rename the original file before starting to convert. Just click on the pencil icon to the left of the file name to edit it.

STEP 2

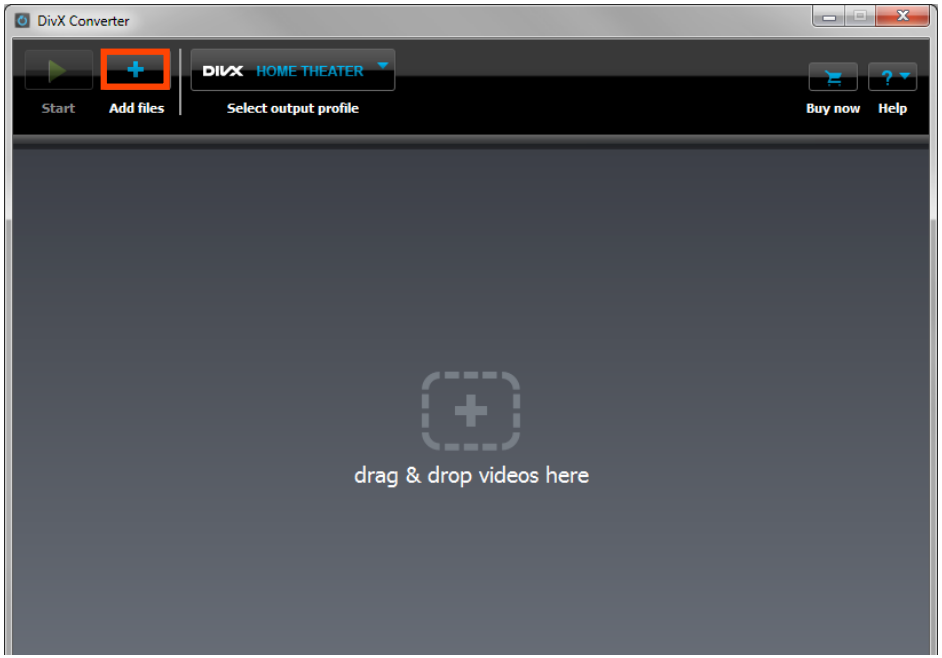
Choose an output profile or preset from the dropdown menu

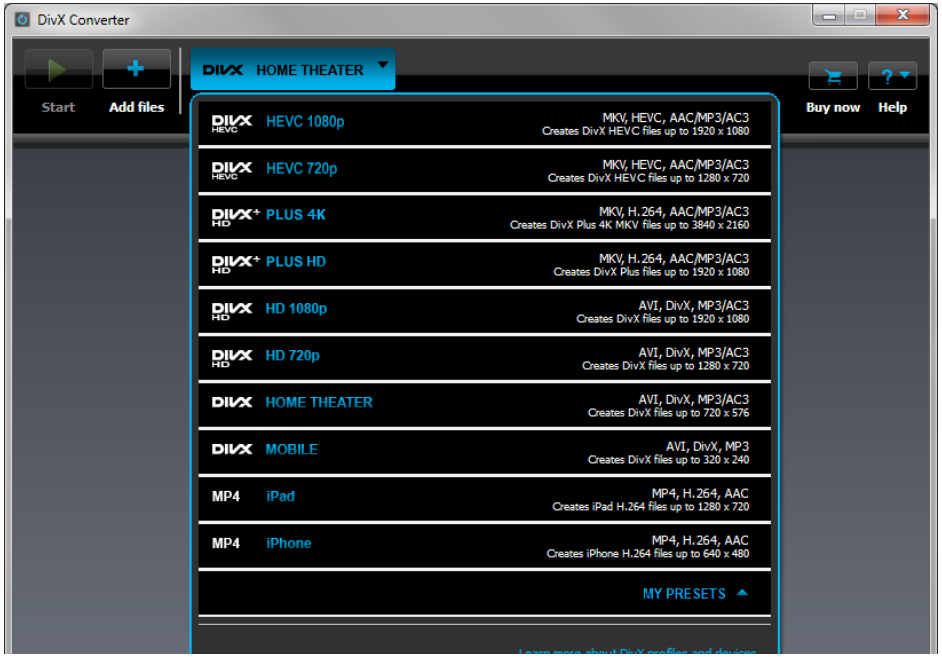
STEP 3

Click the “Start” button

DivX Converter will alert you when your file is finished. Once the file is done encoding you can click “Open” to open up the folder containing your new converted video.

Your default DIVX MOVIES folder is usually located under the MY VIDEOS folder on your computer. For example: C:\Documents and Settings\<your username>\My Documents\My Videos\DivX Movies. The output folder is also listed at the bottom of the DivX Converter’s interface, next to the Change and Open buttons. You can click Open to see your DivX moves at any time, or click Change to use a different output directory.




DivX Converter
Start
Add files
HOME THEATER
Buy now
Help
HEVC 1080p
MKV, HEVC, AAC/MP3/AC3
Creates DivX HEVC files up to 1920 x 1080
HEVC 720p
MKV, HEVC, AAC/MP3/AC3
Creates DivX HEVC files up to 1280 x 720
PLUS 4K
MKV, H.264, AAC/MP3/AC3
Creates DivX Plus 4K MKV files up to 3840 x 2160
PLUS HD
MKV, H.264, AAC/MP3/AC3
Creates DivX Plus files up to 1920 x 1080
HD 1080p
AVI, DivX, MP3/AC3
Creates DivX files up to 1920 x 1080
HD 720p
AVI, DivX, MP3/AC3
Creates DivX files up to 1280 x 720
HOME THEATER
AVI, DivX, MP3/AC3
Creates DivX files up to 720 x 576
MOBILE
AVI, DivX, MP3
Creates DivX files up to 320 x 240
iPad
MP4, H.264, AAC
Creates iPad H.264 files up to 1280 x 720
iPhone
MP4, H.264, AAC
Creates iPhone H.264 files up to 640 x 480
MY PRESETS

REGISTRATION

DivX Converter is part of the DivX 10. All the output profiles and presets are completely free. It also comes with a 15-day free trial of the MPEG-2/DVD Plug-in. After the trial expires, you can continue using any of the output profiles and presets. This will never expire. However, you'll have to purchase the MPEG-2/DVD Plug-in to continue converting MPEG-2 video formats (MPG, TS, VOB and SVCD). To get the MPEG-2/DVD Plug-in, click the "Buy Now" button in the trial screen that opens when your DivX Converter trial expires and follow the instructions to purchase.

After buying the plug-in, you'll receive a serial number by email with the instructions on how to register the product. When your products have been successfully registered, the serial number will disappear and the status displayed to the right of the product name will change to "Registered".

TIP: The MPEG-2 plug-in is integrated on your download of the DivX 10 After purchasing the Plug-in you do not need to download or install any additional software. Simply enter the serial numbers you receive in your order confirmation email and the Plug-in will be enabled for you automatically.

MPEG-2/DVD Plug-in

You can add support to DivX Converter to encode MPG, VOB, TS and SVCD files with the optional MPEG-2/DVD Plug-in (US $9.99). This allows you to backup your personal DVDs and more. Note that your files cannot be copy protected with any sort of DRM or encryption.

TIP: The MPEG-2 plug-in is integrated on your download of the DivX 10 After purchasing the Plug-in you do not need to download or install any additional software. Simply enter the serial numbers you receive in your order confirmation email and the Plug-in will be enabled for you automatically.

PLAYER

DivX Player 10 is available on Windows and Mac and is the official video playback software for DivX® video. It is free Learn more about system requirements for Windows and Mac.

Player provides everything you need for a true HD video experience on your computer and beyond. In addition to playing your .divx files and the .avi files encoded with the DivX Codec, Player can play most other popular file formats such as MKV and WMV provided you have the necessary filters installed on your computer. QuickTime MOV and MP4 files can also be played without the need for any additional software. For a full list of supported formats see this table.

Also available within Player is DivX To Go—a tool that makes it easier to transfer your videos from computer to your DivX devices —and DivX Media Server—which allows you to stream DivX, MKV and MP4 videos to DLNA-compatible devices from your computer. Find out more in our DivX To Go and DivX Media Server sections.

Player is completely free. Optional plug-ins are available for enhancing the audio playback on Windows. DFX Plug-in and SRS AudioFusion can be purchased online. Look for the order confirmation email you'll receive at the time of purchase for instructions to register the plug-ins.

SECTION
02

TOPICS

Playback
Video Library
DivX To Go
DivX Media Server
Video On Demand

PLAYBACK

Player accepts the most popular digital video formats (AVI, DIVX, MKV, MP4, MOV, WMV) and offers advanced features (multiple subtitles, audio tracks, smooth FF/RW) so it's the only tool you need for high-quality playback of your video collection. For details on file support, see this table.

Opening a File

In order to open and play a video stored on your hard drive, on your USB memory stick attached to your computer or from a CD/DVD or USB loaded into your computer, you can use one of the following methods:

STEP 1

Click on the FILE menu and select "Open". Then navigate your computer's folders to pick the file you want to play.

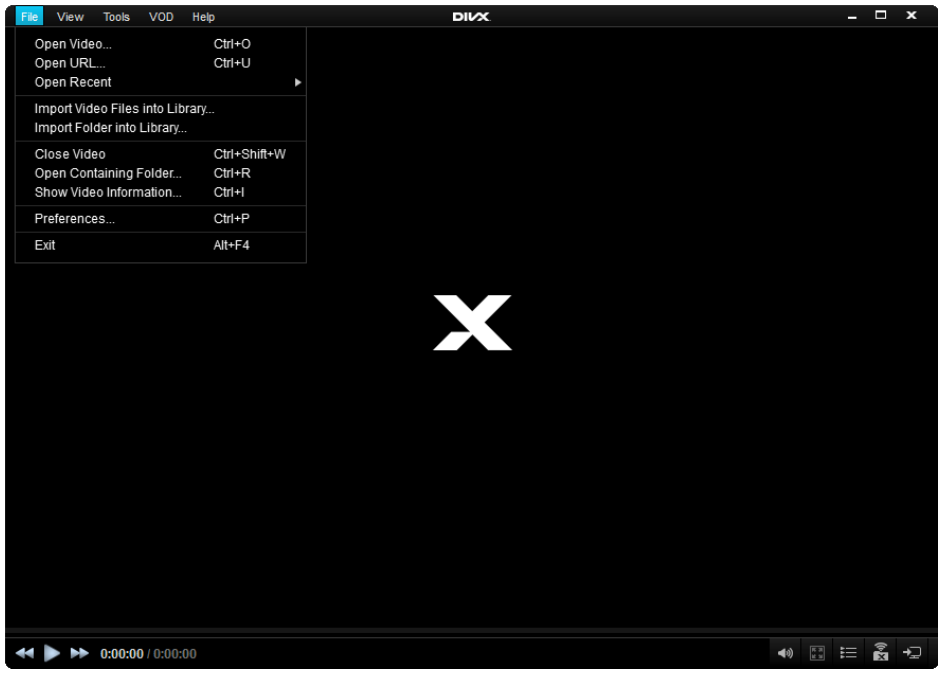
STEP 2

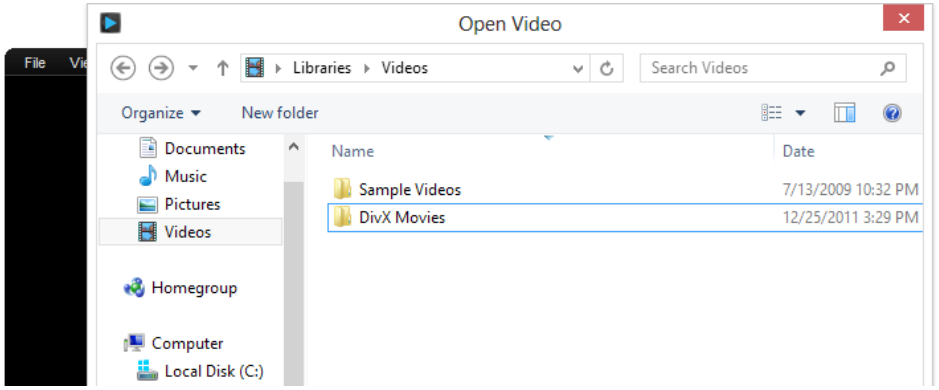
Browse the folders on your computer to find the video you want to play. Double click the file (if that format is already set to use Player as the default program) or right-click and select "Open With…" then pick DivX Player.

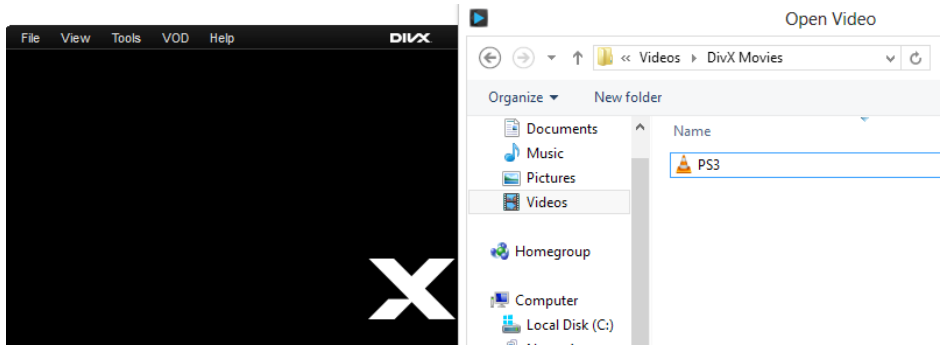
STEP 3

Drag and drop the video from its location on your computer onto the Player screen

TIP: If the playback of your video suddenly stops and you see a promotional banner inside the player screen, this means either that it was the end of the video or that the file is damaged. Player will never stop the playback of your video to display a banner. It will only show ads once the video is done playing, unless banner ads have been disabled in your Preferences.







Opening a File from a URL

In order to open a video from a URL, simply go to the FILE menu of player and select “Open URL”. Enter the Internet address of the video you would like to watch and click OK to confirm.

DO: http://www.mywebsite.com/subfolder/myvideo.divx

DON’T: http://www.mywebsite.com/subpage.html

Please note: Player is only capable of opening direct video links. Do not enter addresses of web pages where the video is located. You will need to enter the URL that is the direct path to the file itself.

VIDEO LIBRARY

The Video Library in Player allows you to easily access and organize your videos for playback, streaming, or burning and copying to other devices. It also has a download manager for downloading your purchased DivX videos and lets you create your own custom playlists of your videos.

Accessing the Video Library

Player comes equipped with the Video Library that helps you to organize your playlists and gives you an overview of your downloaded, purchased, and recently watched videos. This feature is very handy if you have many videos to be organized in playlists, or simply want to keep track of what you purchase, download and watch with the Player.

To access the Video Library, use one of the following methods:

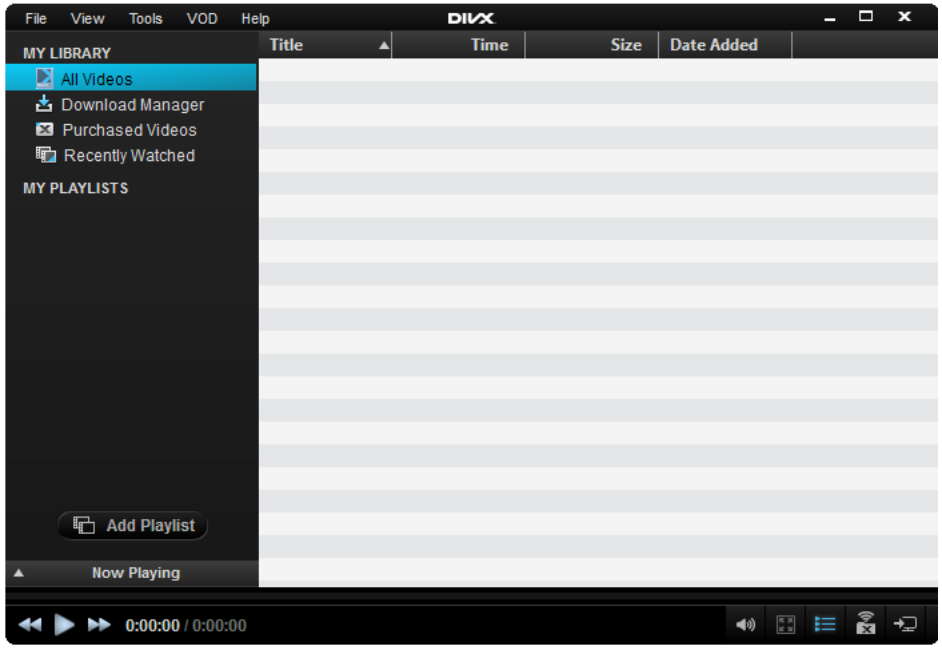
STEP 1
Click on the Video Library icon located in the lower right corner of the Player

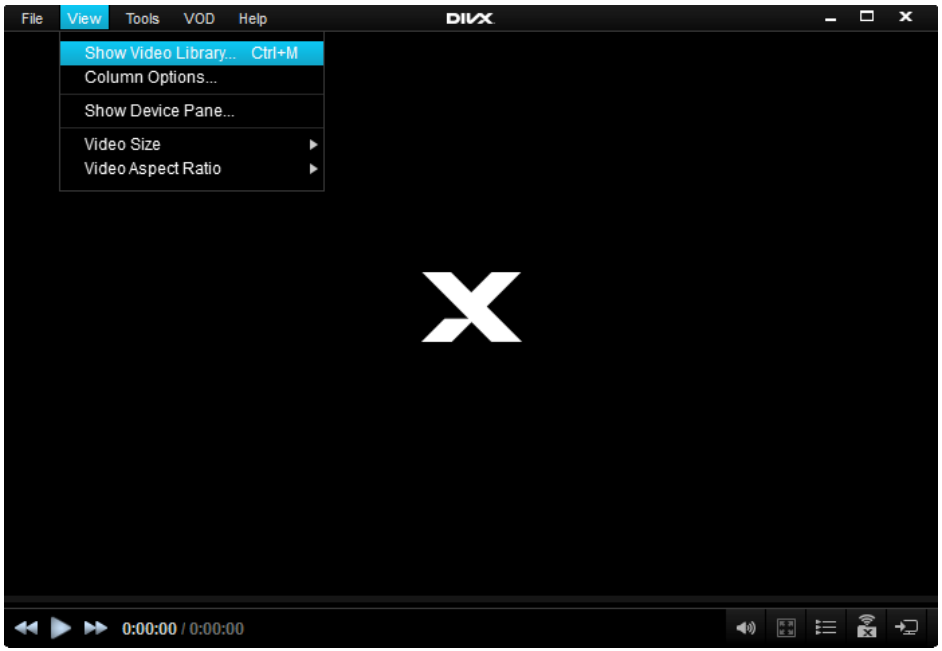
STEP 2
Click on the VIEW menu and select “Video Library”

STEP 3
Press Ctrl + M (on Windows) or Command + M (on Mac) on your keyboard

When your Video Library is open you can see the overview on the left side of the Player, consisting of the following:

All Videos	This option lists all videos included in your Video Library
Download Manager	Tracks your downloads and their progress status
Purchased Videos	Lists your DivX VOD movie purchases
Recently Watched	Lists videos you have watched most recently
My Playlists	Shows playlists that you have created

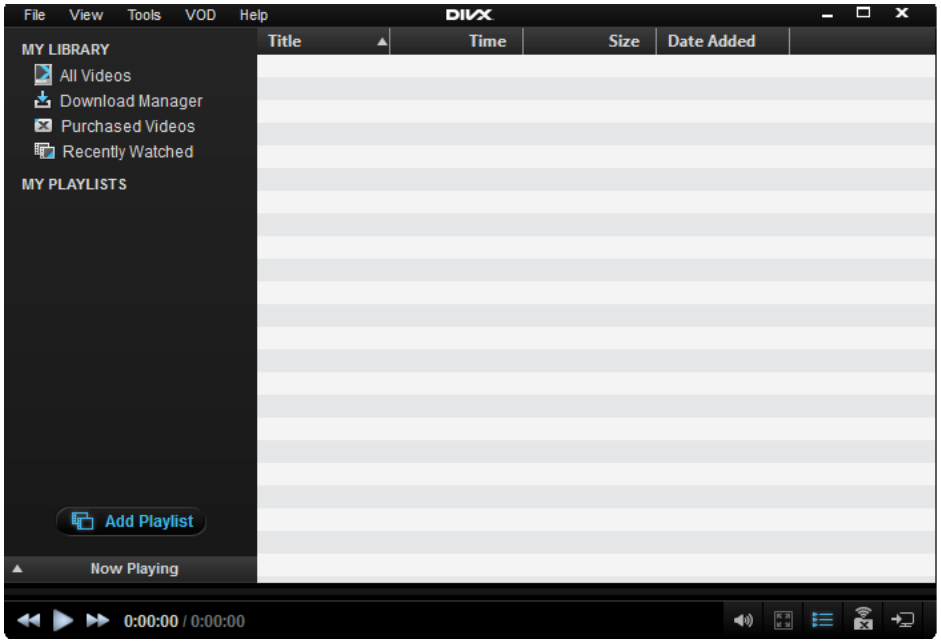




Creating a Playlist

In order to create a playlist, click on the “Add Playlist” button in the Video Library pane.

Double click on the Playlist name to rename it. To delete a playlist, highlight it with your mouse and press the DELETE key on your keyboard or right-click on the playlist name and select “Delete Playlist”.



Managing Files in a Playlist

To add a video file to a playlist:

STEP 1
Select the targeted playlist in the left column on the Video Library under MY PLAYLISTS

STEP 2
Drag and drop the video file you want to add onto the playlist in the right column

To delete a file from a playlist:

OPTION 1
Select the file with your mouse and press DELETE on your keyboard

OPTION 2
Right-click on the video name and select “Delete”.

To play the entire playlist from beginning to end, right click on the playlist name in the library navigation pane to the left, and select “Play playlist”. To play one video at a time, double-click the title of the video in the playlist.

Importing Files into the Video Library

You can import single files or entire folders into the Video Library.

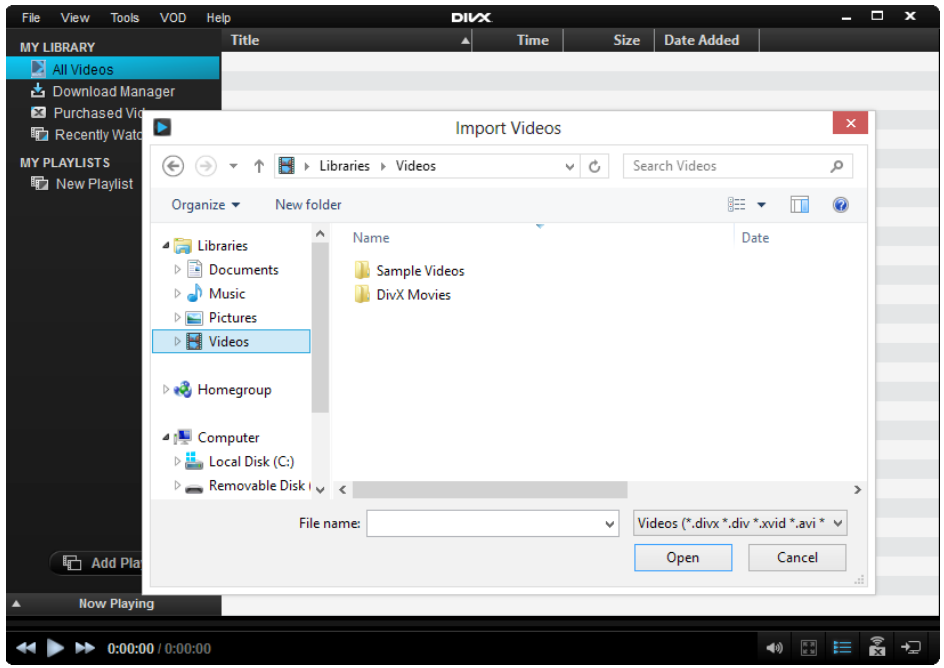
TIP: Downloaded and purchased movies will automatically appear in your Video Library.

To import a video file into your Video Library:

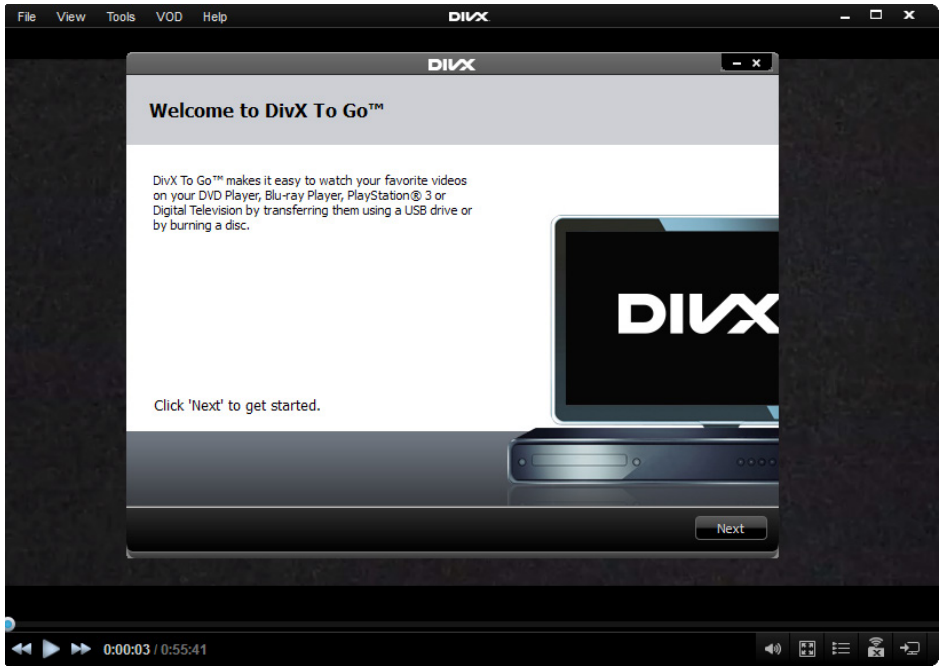
- Open the FILE menu and select “Import Videos into Library”
- Select the video you want to import from the folder browsing window
- Click “OK” to confirm

To import a folder with video files into your Video Library:

- Open the FILE menu and select “Import Folders into Library”
- Select the folder you want to import from the folder browsing window
- Click “OK” to confirm



DIVX TO GO


File View Tools VOD Help
DIVX
Welcome to DivX To Go™
DivX To Go™ makes it easy to watch your favorite videos on your DVD Player, Blu-ray Player, PlayStation® 3 or Digital Television by transferring them using a USB drive or by burning a disc.
Click 'Next' to get started.
Next
0:00:03 / 0:55:41

DivX To Go: An Easier Way to Transfer Your Movies

Player includes DivX To Go, which allows you to automatically format videos to play on any DivX Certified® device. You can easily transfer your movies, TV shows or home videos to your DVD player, PlayStation3® and more by easily burning a disc or saving to a USB or a place on your computer.

DivX To Go features:

- Automatically prepares your videos to play beyond your computer
- Ensures your videos are formatted properly to play on DivX devices
- Saves your preferences for easy transferring

Method 1

To transfer your video files to your DivX Certified device using DivX To Go, follow these steps

STEP 1

Click on the Device Pane button to open the Device Pane (if it's not already open)

STEP 2

Click on the icon for the device to which you want to transfer your video files. Or drag and drop videos from your Video Library—or from anywhere on your computer—onto the device icon

STEP 3

DivX To Go will launch. Click "Next" on the Welcome screen.

STEP 4

Choose the type of DivX device you have:

- DivX: this is the default and recommended profile if you are not sure which type of device you have. A DivX Certified device supports standard definition DivX files (.avi or .divx up to 576p)

- DivX HD: A DivX HD Certified device supports high definition DivX files (.avi or .divx up to 1080p)

- DivX Plus HD: A DivX Plus HD Certified device supports high definition DivX or DivX Plus HD files (.avi, .divx, or .mkv up to 1080p).

TIP: Learn more about DivX Certification and how to know if your device is certified.

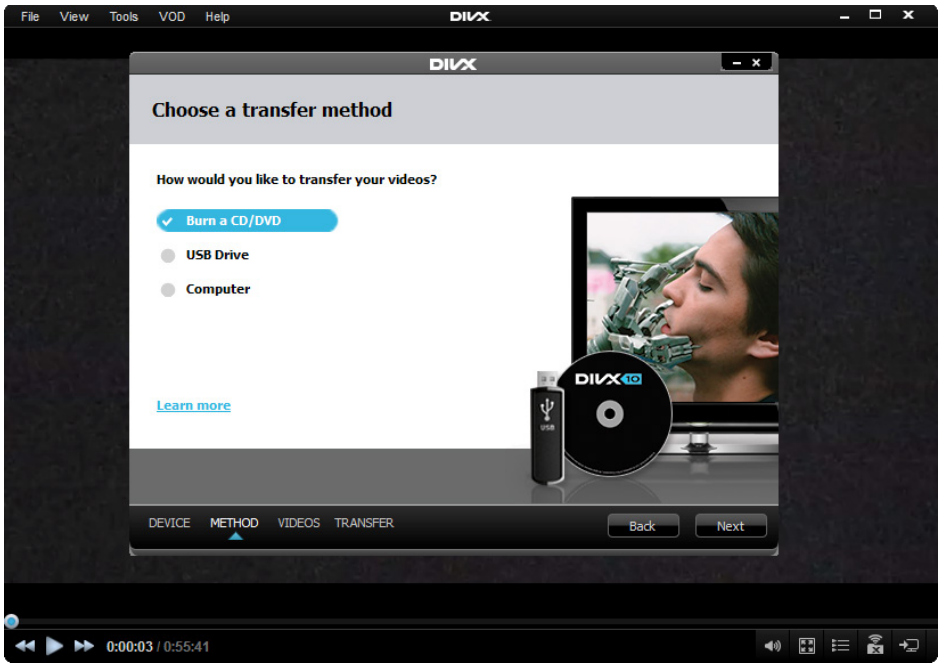
NOTE: If your file is not in the correct format for your device it will be converted before it is transferred.

STEP 5

Select how you would like to transfer videos to your device:

- Burn to CD or DVD
- Copy to a USB storage device
- Save to your computer

File View Tools VOD Help
Choose your device type
Which type of DivX Certified device do you have?
Recommended
This choice will work with any DivX Certified Blu-ray Player
Help me choose
DEVICE METHOD VIDEOS TRANSFER
Back
Next
0:00:03 / 0:55:41



STEP 6

Insert a disc or USB into your computer if you have not done so already

STEP 7

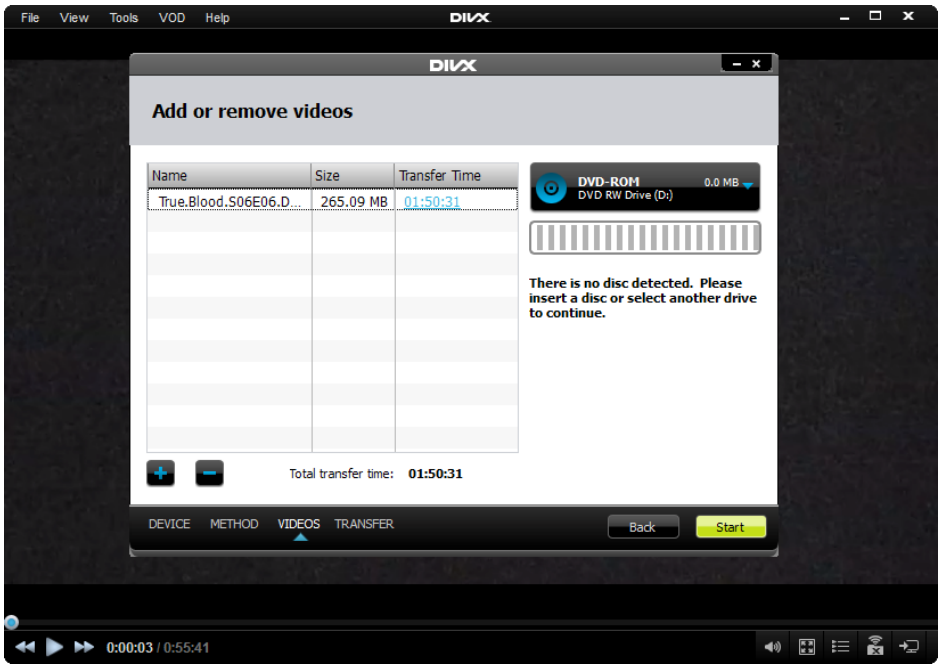
Add/delete video files you want to transfer. Or, if there is a video loaded in your player or you dragged and dropped on on the device pane, it will already appear in the list.

STEP 8

Click “Start”

When the transfer is complete, simply insert your CD, DVD or USB into your DivX Certified device, and select the title you want to view and select play.

Once you complete a transfer for your device, all your DivX To Go settings will be remembered the next time you transfer a video.



Method 2

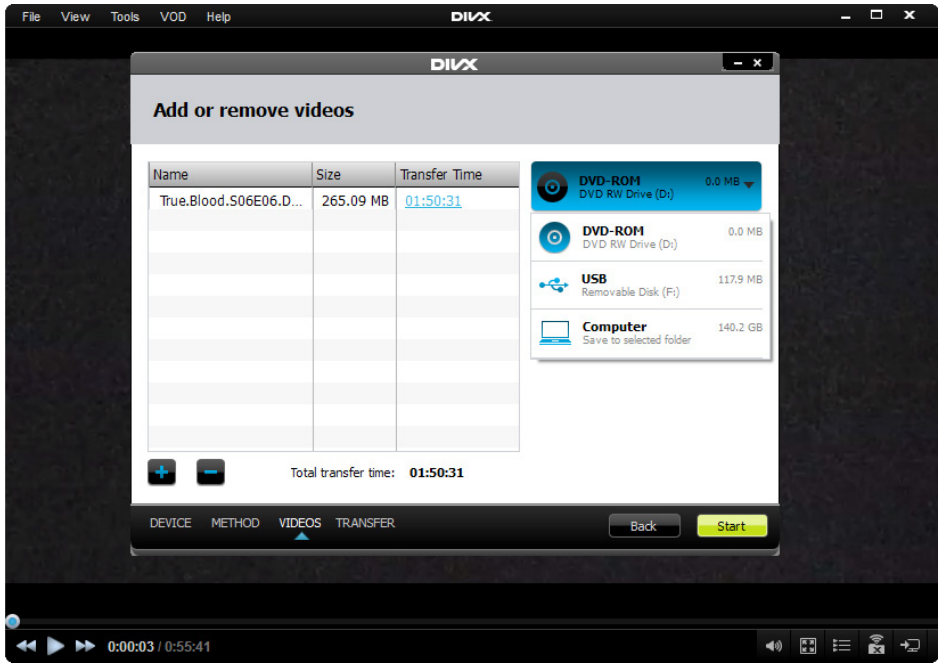
Alternatively, you can open the TOOLS menu and select “Transfer files to device.” You will need to choose the device on which you want to play your DivX file: DVD Player, Blu-Ray Player, PS3, or TV.

STEP 1

The Add/Remove Videos window will open. You can add files by clicking on the [+] button in the lower left corner.

STEP 2

Once you add your video files, click “Start” to begin transferring your files.



PROFILES & COMPATIBILITY

DivX Profiles and Certified Devices

Your DivX Certified device has been thoroughly tested to guarantee playback of a specific DivX profile. DivX profiles are:

- DivX Mobile
- DivX Home Theater
- DivX HD 720p
- DivX HD 1080p
- DivX Plus HD

Please check your user manual or check our online list to find out the DivX profile with which your device is DivX Certified. This will tell you the type of DivX files it can play.

Compatible Media Types

Consumer electronic devices vary on their support for the type of storage media from which they can play videos. For example, many DVD Players only accept "-R" discs (e.g. CD-R, DVD-R/RW) and do not accept "+R" discs (e.g. DVD+R/RW). Some HD TVs also require USB storage devices to be in specific formats (e.g. Fat32). Please check the technical specifications for your DivX Certified device to make sure the type and formats of media storage you can use.

TIP: If you are not able to play your DivX video that was burned to a CD/DVD+R, re-burn it to a CD/DVD-R and try again.

Converting Files with DivX To Go

When transferring your video files using DivX To Go, it will convert any files that are not in the proper profile for the device to which you are transferring. Since this transferring process will also convert your file, it can take longer than a simple transfer.

For example, if you have a file from your camera, or a file that was created for a different DivX profile, DivX To Go will automatically convert it to the correct profile to ensure playback compatibility with your device.

DIVX MEDIA SERVER

Watch videos from your computer on a DLNA device

Player now includes DivX Media Server, a feature that allows you to stream your high-quality videos to your DLNA certified devices via your home network. It is accessible directly from the STREAM icon in the Player's Device Pane, above the DivX To Go® icons.

Once you've activated DivX Media Server and shared your folders over your network, you can start enjoying your videos on your DLNA capable devices.

TIP: DivX Media Server will only stream video files and cannot stream photos or music. It can stream DivX, AVI, MP4, and MKV files on your computer. Playback support of these files is also determined by the capability of your device to play them, so be sure to check the file support for your DLNA device.

Using DivX Media Server

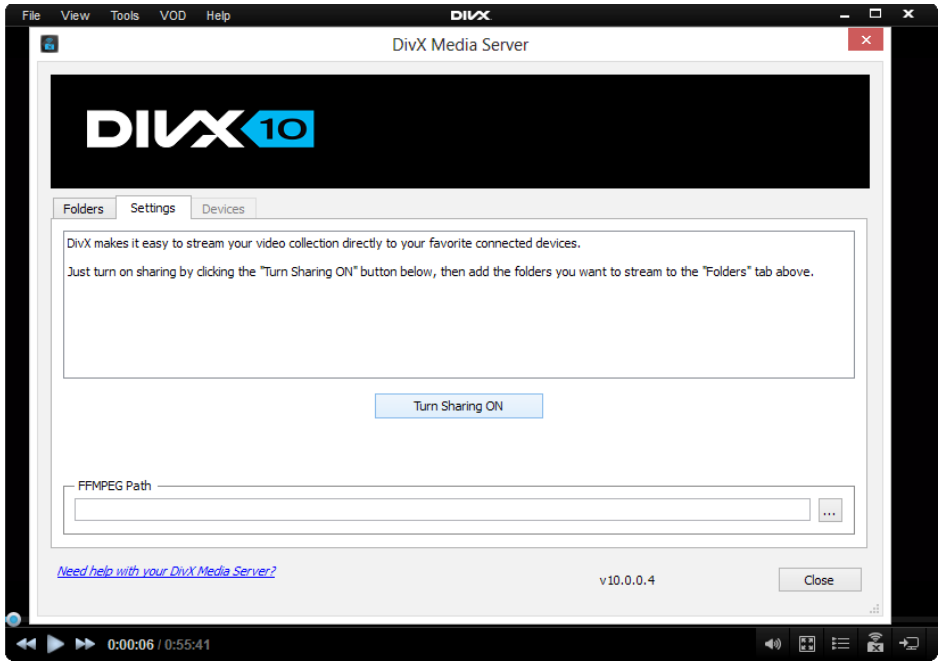
To use DivX Media Server with a DLNA compatible device, the computer with Player and the DLNA device must both be connected to the Internet using the same network.

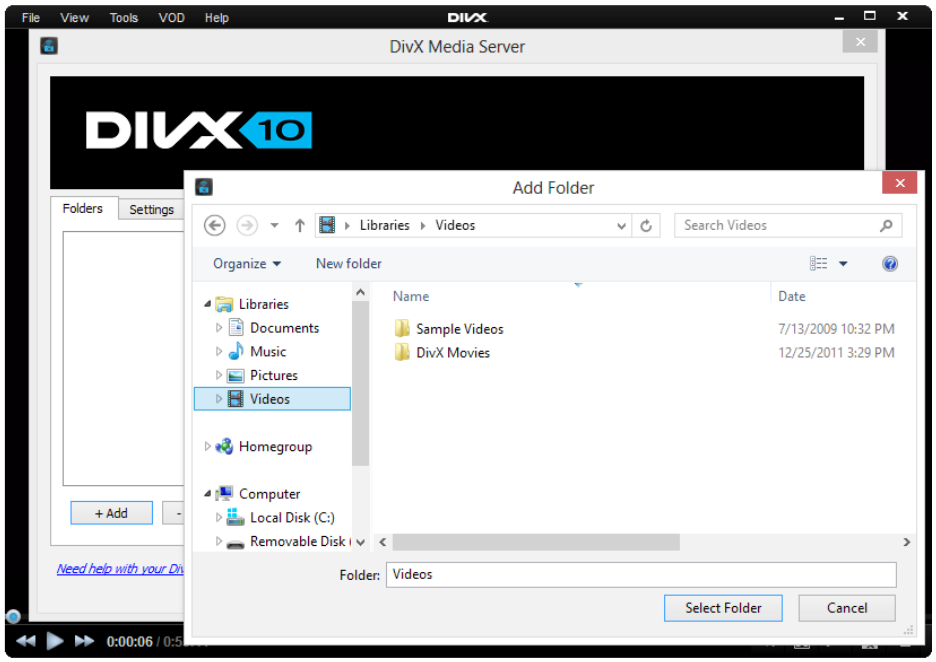
To start using DivX Media Server, it needs to be turned. In the device pane of Player click on the “Stream” button and in the DivX Media Server window click the “Turn sharing ON” button.

Once sharing is on, you’ll need to tell the media server where to find the files that you want to share across your network.

Click on the FOLDERS tab to see the folders that will be shared over the network (this is necessary for your DLNA devices to be able to access the videos on your computer). By default, it is the DIVX MOVIES folder. This folder is created automatically when DivX 10 is installed on your computer. You can change this setting to share any folder on your computer, or to add multiple folders to your server at once.

You can select multiple folders to share via DivX Media Server by adding them to the Folders list. Simply click the “+ ADD” button to start browsing your computer for the folders to add to the server. Use the “-REMOVE” button to remove folders from the list. There is also a “RESTORE” button which will set the folders back to the default state, which will share only the DivX Movies folder.


File View Tools VOD Help
DivX Media Server
Folders Settings Devices
DivX makes it easy to stream your video collection directly to your favorite connected devices.
Just turn on sharing by clicking the "Turn Sharing ON" button below, then add the folders you want to stream to the "Folders" tab above.
Turn Sharing ON
FFMPEG Path
Need help with your DivX Media Server?
v10.0.0.4
Close
0:00:06 / 0:55:41



VIDEO ON DEMAND

What is DivX VOD?

The “VOD” refers to Video-On-Demand. DivX has a technology that allows other websites to sell videos ranging from Hollywood hits to independent films in DivX format. This technology is integrated into Player as well as every DivX Certified device.

When you rent or buy a movie online from one of our partners’ websites, the movie is associated to your DivX Account through a simple login process. Once you register any of your DivX Certified devices to your DivX Account, you will be able to play any of the movies belonging to the same DivX Account on those devices.

DivX VOD is a Digital Rights Management (DRM) system. This means that it securely protects copyrights while allowing users to legally rent or purchase movies online. The files are encrypted for this copyright protection, so they cannot be converted or used in non-DivX software or devices.

Purchased DivX movies belong to the DivX Account, not the individual computer. So you can simply login to your DivX Account in the Player to watch videos on any Internet connected computer, or play the movie on any DivX Certified device that has been registered to the same DivX Account.

TIP: since your movie belongs to your DivX Account, which is identified by your email address, if you ever need to change email addresses you should simply update your DivX Account to use a new address. Do not create a new DivX Account as your movie cannot be moved to a new account.

Where to Find Movies

DivX video has been shared on the Internet since 1999. Videos created in the DivX format will play out of the box on any computer or DivX Certified device. However, purchased DivX movies only come from websites that partner with DivX to sell secure and legal content in the DivX format.

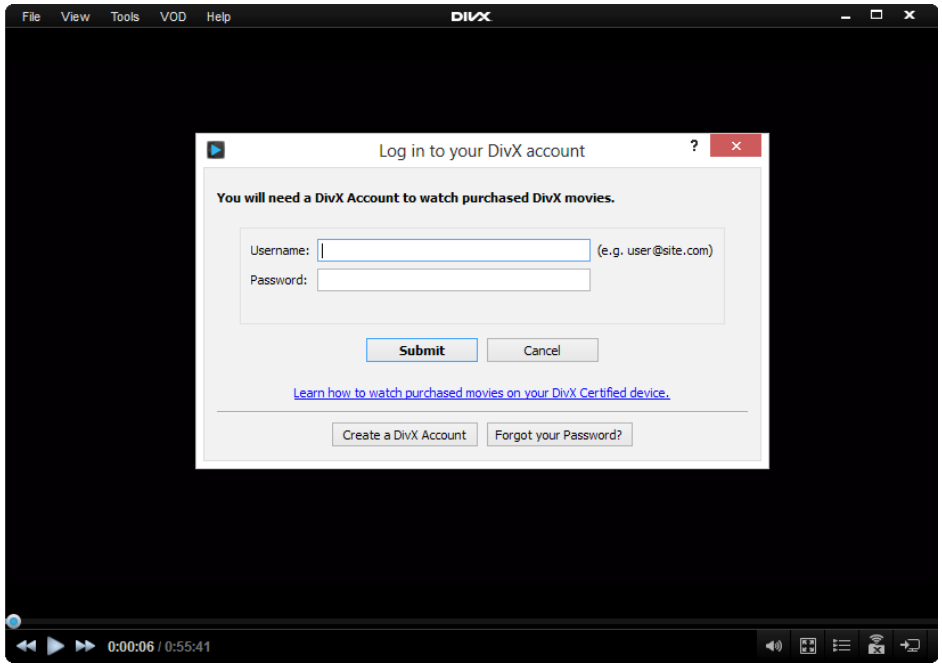
All DivX Video-On-Demand content is distributed through third-party websites. We do not sell any DivX movies directly on our website, but you can find out about the sites offering the latest Hollywood hits and more on our Find Movies page.

Using DivX Player for DivX VOD

When you buy or rent a DivX video online, you will be given a download link either on the website or via email after you complete your purchase. To download your video, just follow your download link.

The download link will give you a .tix file. This is your electronic movie ticket. Open your .tix file in Player, create or login to your DivX Account, and this will start the download of your movie.

TIP: You can track the progress of your downloads through the Download Manager of Player. This will open automatically when your download begins. You can also find it easily at any time by clicking on the Video Library button in the bottom right corner of the player and then selecting “Download Manager” on the left Video Library navigation pane.

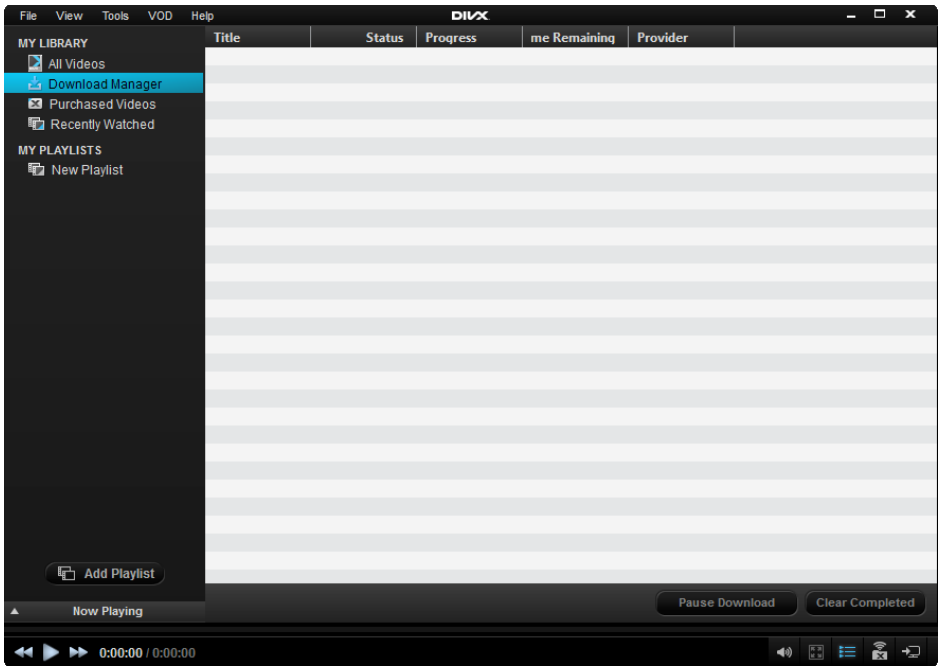


Progressive Playback

Thanks to its Progressive Download feature, Player will allow you to start watching your movie on your computer within just a few moments after the download begins, while the video is still downloading. Playback will start automatically once it’s ready, so you can have nearly instant movie gratification!

When your movie is finished downloading, you can watch it on your computer at any time with an Internet connection. You can also transfer your movie to any DivX Certified device that’s been registered to your DivX Account using DivX To Go.

TIP: To learn more about the one-time registration of your device for VOD playback, check out our Device Registration instructions. Library navigation pane.



CODEC

SECTION
03

TOPICS

The DivX Encoder – More Info
Your First DivX File
Audio
Your First Multipass

DIVX CODEC IN VIRTUALDUB

Working with video requires a variety of tools to achieve the best possible results. There are some processes for which dedicated-purpose tools can be invaluable in the world of digital video. Most notable of these tools by far is VirtualDub.

VirtualDub is a free dubbing application that lets you cut, splice, dub, convert between video formats, and apply filtering effects. Although it lacks some functionality typically associated with commercial video editing applications (easy DVD conversion, programmable digital VCR, video transition effects, etc.), it is an essential tool in anyone's arsenal: powerful, yet remarkably easy to use.

This Quick Start Guide will teach the basics of VirtualDub and walk you through creating your very first DivX videos. For now, resist the urge to explore and simply follow the instructions.

Before we start, download VirtualDub to your computer. It's a small download, open-source, and entirely free (although the author does accept donations!). Once downloaded, extract the .zip file to a new folder on your computer's hard drive. No formal installation procedure is required. This guide uses VirtualDub 1.9.11, but the interface of later versions should remain similar. Note: to use DivX you must install the 32-bit version of VirtualDub.

THE DIVX ENCODER - MORE INFO

In the DivX encoder window, you'll see three tabs that allow you to configure the settings for your encoding: Main, Codec, Video.

Main - select DivX Certification Profile, encoding Speed/Quality levels, and Rate controls

Under the Main tab, you can select your encoding profile. The DivX Certification Profiles include:

- 1080HD Profile: high definition video up to 1920x1080 at 30 fps or 1280x720 at 60 fps
- 720HD Profile: high definition video up to 1280x720 at 30 fps
- Home Theater Profile: standard definition video up to 720x480 at 30 fps or 720x576 at 25 fps
- Mobile Profile: video optimized for mobile devices up to 320x240 at 30 fps
- Mobile Profile: video for mobile devices up to 176x144 at 15 fps

With your videos in the DivX format, you can play them on your PC/Mac, on your TV or on the go with millions of DivX Certified devices (DVD Players, gaming consoles, mobile phones, etc.) To ensure the video you create is compatible with your DivX Certified device, check the DivX Certification profile of the device to the one selected in the DivX encoder configurations.

Use the scrolling bar to select a custom setting for Speed v. Quality. This will affect how fast or slow the encoding is processed based on the quality of the output you need. Rate Control and Bitrate selections will also affect the quality of the video as well as the file output size. Higher bitrates lead to better quality but larger files. We'll also cover some of the Rate Control options under "Your First Multipass" section.

Codec - Speed/Compression performance, Frame Control, Motion Estimation

Under the Codec tab, you can select the Codec Performance. The default encoding mode is "Balanced," which finds a happy medium between the degree to which the file is compressed and the speed at which it is encoded. You also have the following options to choose from, depending on the result you are looking for from your file:

- Fastest: conversion will finish quickly; designed for high resolution live capture or slower computers. This could result in some quality loss. Higher bitrates can compensate for some of the quality loss.
- High Performance: a faster conversion but slightly lower quality than Balanced with moderate compression. Higher bitrates can compensate for some of the quality loss.
- Better Quality: conversion will take slightly more time but compression is efficient and quality is retained.
- Extreme Quality: creates highly compressed files with production quality video, but conversion is much slower.
- Insane Quality: when quality is your sole concern, regardless of the time it takes to complete.

Other options in this tab include Frame Control and Motion Estimation. For more information on how these affect your video output, take a look at the DivX Codec User Guide (opens an .exe file).

Video - Custom Resolution, Aspect Ratio, and Image Processing

The Video tab lets you set custom aspect ratios or resolutions if you do not want to use the defaults defined by the DivX profiles.

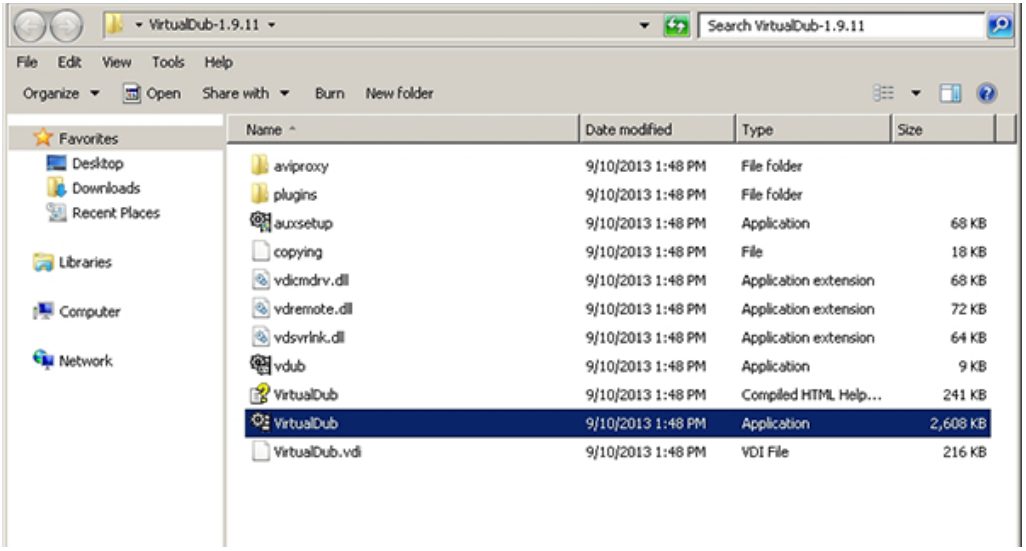
Under Video Resolution, you can select from standard Aspect Ratios (Square Pixels, PAL 4:3, NTSC 4:3, PAL 16:9, NTSC 16:9) or set a custom PAR for both the input and the output. Or, use the "Custom resize" option to set a custom resolution.

Advanced Settings

You'll notice that on the bottom of every tab is also a button called "Advanced." This button opens an advanced Settings window where you can enter manual CLI codec settings, change your Temporary Files Folder, as well as some other settings such as disabling the feedback window.

YOUR FIRST DIVX FILE

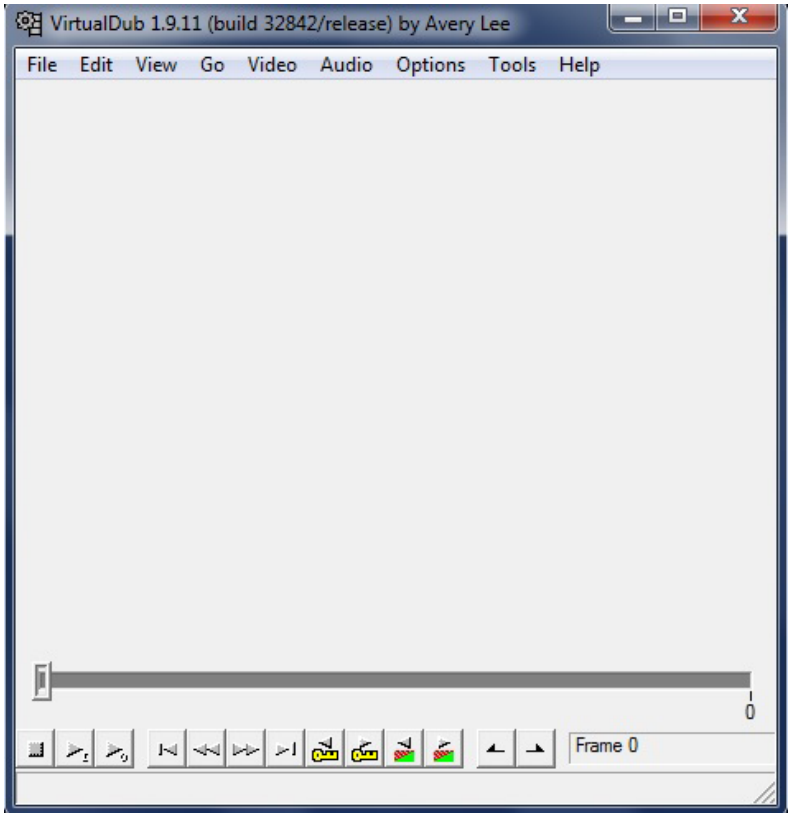
To begin we will use VirtualDub to opena MPEG-1 video file and convert it to DivX format. For the purposes of simplicity our video will not include an audio track at this point.


VirtualDub-1.9.11
Search VirtualDub-1.9.11
File Edit View Tools Help
Organize Open Share with Burn New folder
Favorites
Desktop
Downloads
Recent Places
Libraries
Computer
Network
Name Date modified Type Size
aviproxy 9/10/2013 1:48 PM File folder
plugins 9/10/2013 1:48 PM File folder
auxsetup 9/10/2013 1:48 PM Application 68 KB
copying 9/10/2013 1:48 PM File 18 KB
vdlcmdrv.dll 9/10/2013 1:48 PM Application extension 68 KB
vdremote.dll 9/10/2013 1:48 PM Application extension 72 KB
vdsvrlnk.dll 9/10/2013 1:48 PM Application extension 64 KB
vdub 9/10/2013 1:48 PM Application 9 KB
VirtualDub 9/10/2013 1:48 PM Compiled HTML Help... 241 KB
VirtualDub 9/10/2013 1:48 PM Application 2,608 KB
VirtualDub.vdi 9/10/2013 1:48 PM VDI File 216 KB

STEP 1
Load VirtualDub by double-clicking on the VirtualDub program icon

In the VirtualDub main window (from top to bottom) you will see:

- Program menu
- Video display area (currently empty)
- Timeline and seek control
- Timeline control buttons
- Tool tips bar

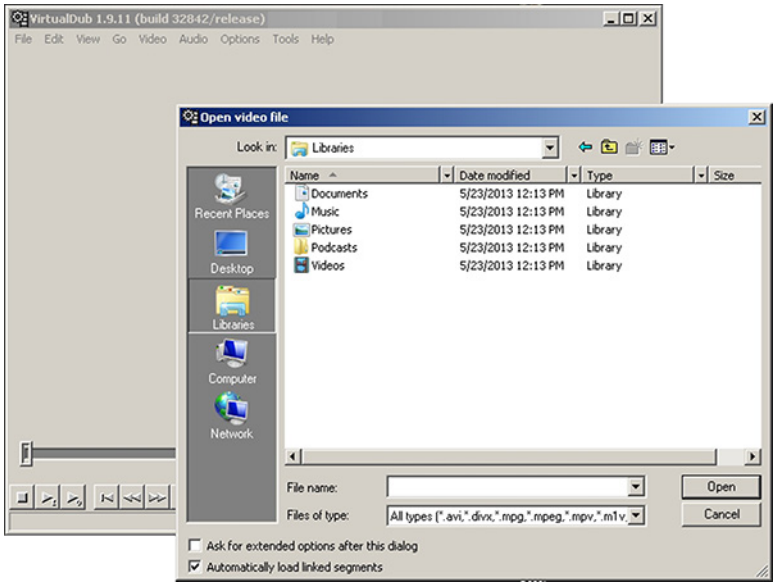


From left to right the timeline control buttons are:

- Stop
- Play input
- Play output
- Go to start
- Backward
- Forward
- Go to end
- Previous key-frame
- Next key-frame
- Find last scene change
- Find next scene change
- Set mark-in
- Set mark-out

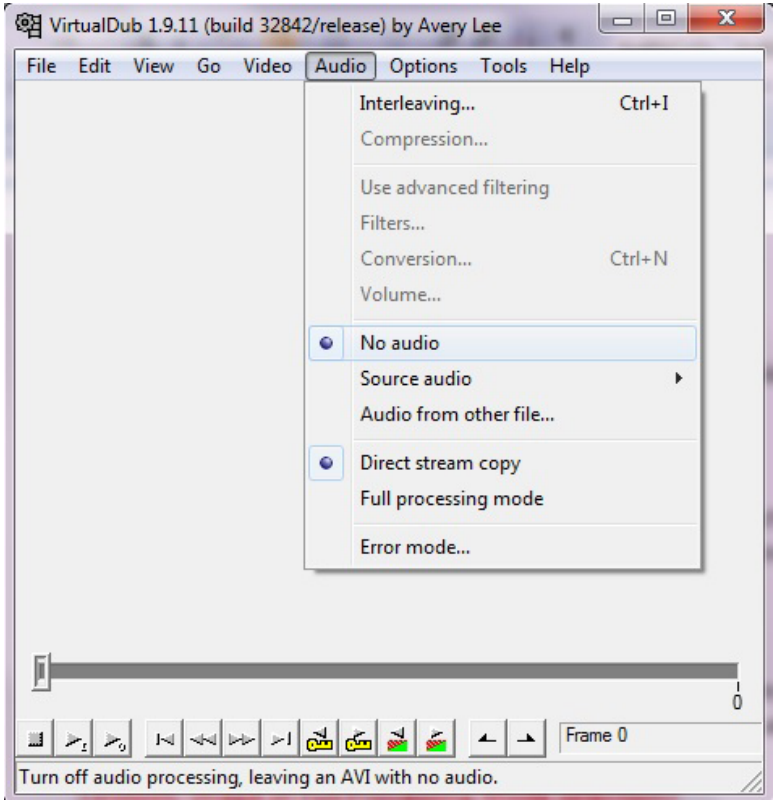
STEP 2

From the FILE menu choose Open and select the video you want to convert.



STEP 3

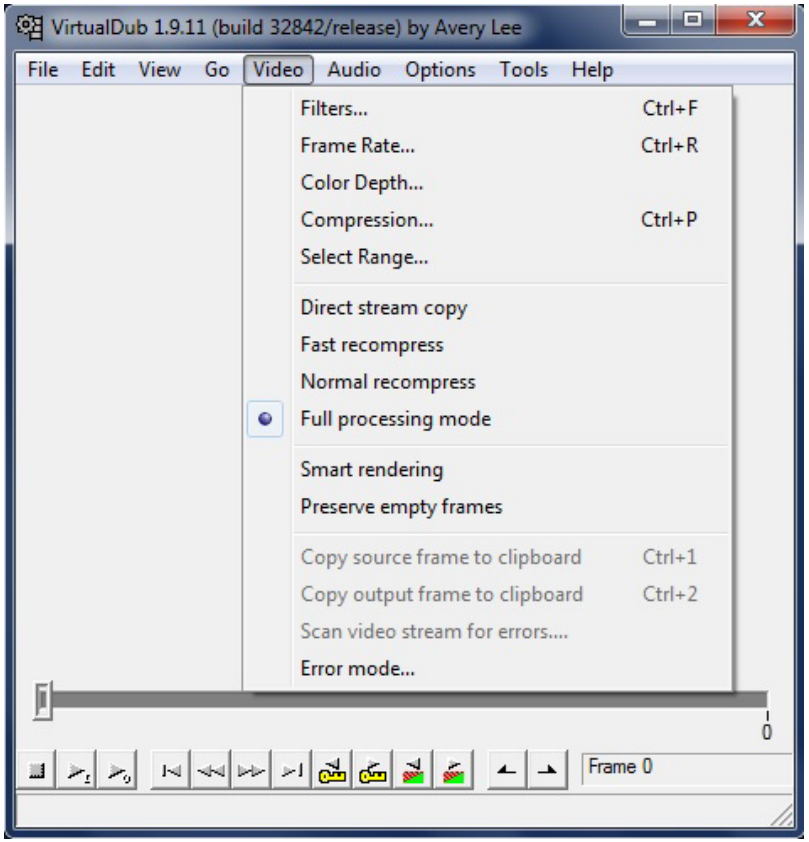
From the AUDIO menu set No Audio. This instructs VirtualDub that even if the source file contains audio data we do not want to process it or copy it into our output file.



STEP 4

From the VIDEO menu set Full Processing Mode.
In this mode VirtualDub allows us both to recompress the video (here we will be going from MPEG-1 to DivX) and also apply any filters should we choose to do so.

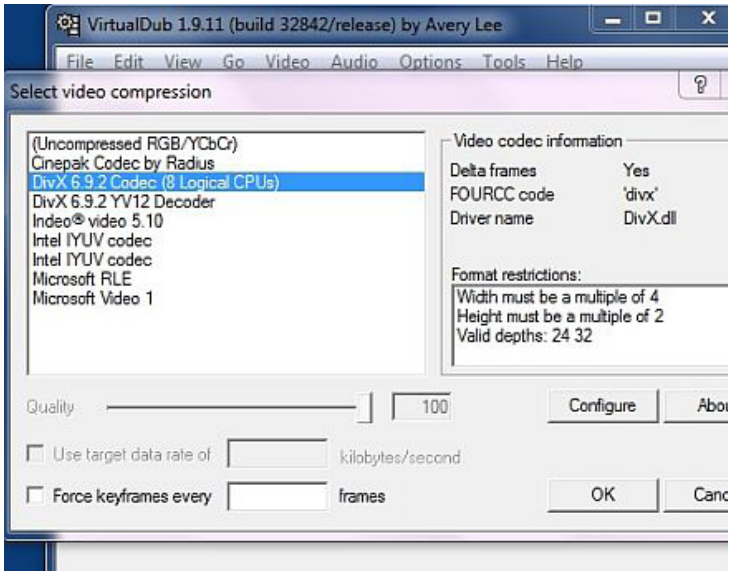
Because we will not be applying filtering here, Normal Recompress might give us better performance. Fast recompress gives the best performance but may not work in all circumstances. For the present time leave the video mode set to Full Processing Mode.



STEP 5

Now we want to configure DivX as the video compressor. Select the Compression option from the VIDEO menu to open the compressors list.

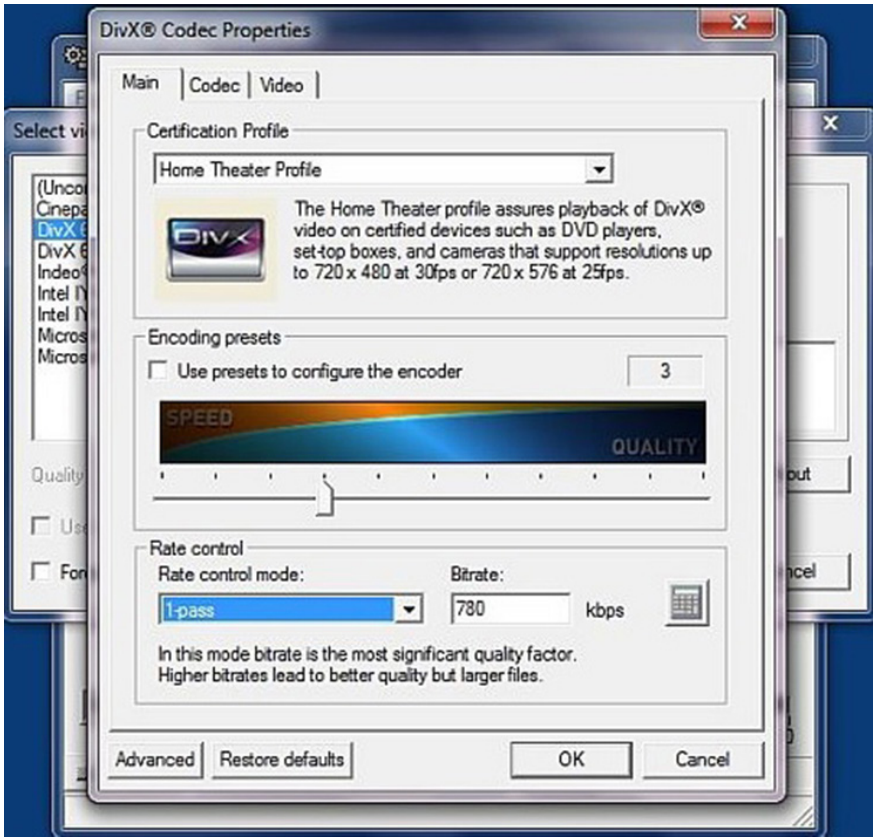
Select the “DivX® 6.9.2 Codec (4 Logical CPUs)” from the list and click Configure to bring up the DivX encoder configuration dialog. This will allow you to configure your DivX Codec to the DivX profile you would like to use. For this example, we will be using the Home Theater Profile, which is our standard definition preset.



STEP 6

Congratulations! If you made it this far, this is the first time you will have seen the DivX encoder. At this point, we simply want to configure the encoder with the default settings using the “Restore Defaults” button, but you could also take this opportunity to explore the encoder configuration dialogue before continuing.

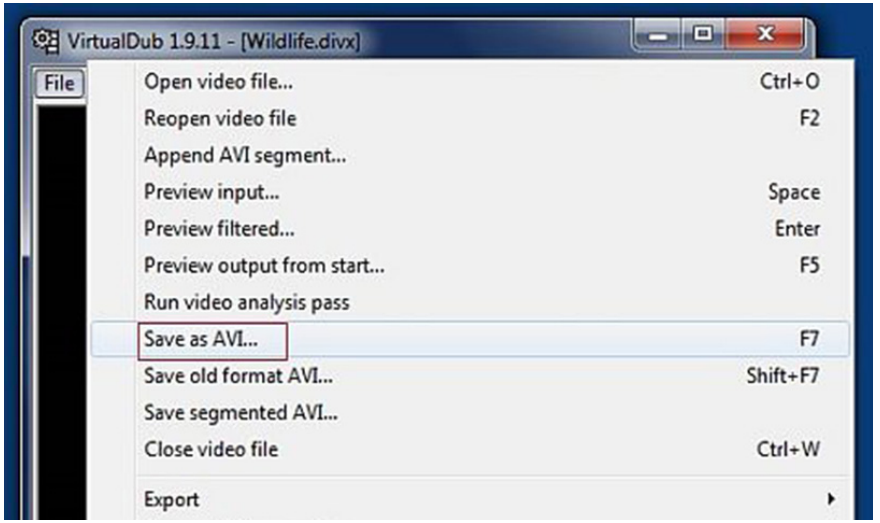
Once you’re ready, click “Restore Defaults” and then “OK.”



STEP 7

All that remains is to let VirtualDub know where to save your AVI file. Open the FILE menu and select Save as AVI… When you do this, VirtualDub will begin processing the video and writing the encoded data to a file.

Enter the filename that will identify this video and click “Save” to start processing.



STEP 8

The VirtualDub status window will pop up and lets you monitor the encoding process.

Here you'll see the progress bar, how much video and audio data has been encoded, and a projection of the final file size. The projection is a very rough estimate because DivX may vary the bitrate throughout the file.

TIP: If the estimated time is quite long and you would like to work in other applications while encoding, use the Processing thread priority drop-down menu to select "Lowest." This will make Windows share more CPU time with other applications but will also result in longer encoding times.

During encoding, you'll also see the Feedback Window.

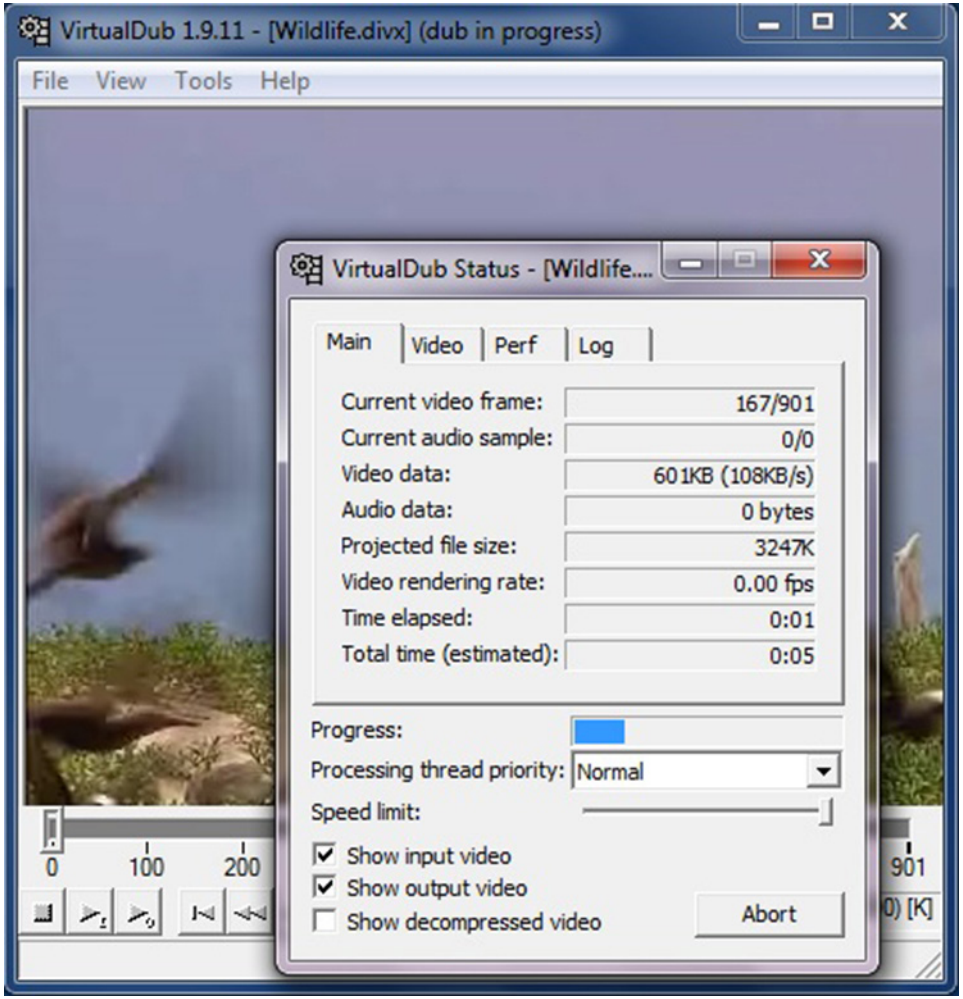
First introduced in DivX 5.1, the Feedback Window lets you monitor and manipulate the inner workings of the DivX encoder in real time.

You will see the Feedback Window unless it is disabled under the "Advanced" button located in the bottom left corner of the DivX encoder configuration window (see Step 6). This option is disabled by default; simply uncheck the box to enable it.

You may want to explore some of the display options shown here while your video encodes, but for now avoid altering the options in the bar at the very bottom of the window.

In terms of performance, the Feedback Window may reduce the rate at which your video is encoded. To reduce overhead, increase the update interval so that the feedback display is not updated every single frame.

The feedback and status windows will close automatically after encoding. Once encoding is finished, you will be able to play your first DivX movie using the DivX 10 Player (bundled free in the DivX 10 Software) or any other media player that plays DivX files.



AUDIO

DivX is a video codec. As such, it does not handle audio in any way and we will not cover the very broad topic of audio in detail. Most likely, you will want audio with your DivX video, so we will briefly cover a few important points.

1 - There are many audio formats and codecs that can be used in combination with an AVI container, each with different properties and features. DivX-encoded AVI files generally use Constant Bitrate MPEG1-Layer 3 Audio, or CBR MP3 for short. CBR MP3 is the recommended audio format for DivX video and has a number of benefits:

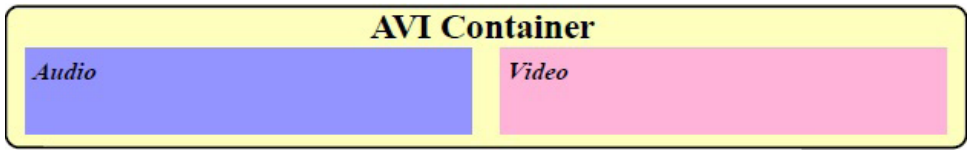
- MP3 audio is supported natively by most operating systems
- MP3 audio is supported by DivX Certified hardware players
- CBR MP3 audio is least likely to introduce de-synchronization between audio and video.

The MP3 codec distributed with Windows is the Fraunhofer IIS MPEG Layer-3 Codec (advanced). This codec is capable of decoding high-bitrate MP3 format audio but is limited to low-bitrate encoding. VirtualDub works only with audio codecs designed for Microsoft's Audio Compression Manager, or ACM, and thus you will need to install an ACM MP3 encoder.

As a rough guide: 128 kbps is generally considered close to CD quality when encoding to CBR MP3, but bitrates 112 kbps and up are generally acceptable for stereo sound. Halve the bitrates for mono sound.

2 - Audio contained in an AVI file must be correctly interleaved for stable playback performance—particularly when content is to be stored on optical media (such as CD-R or DVD-R), or other media with high seek times.

Consider this AVI container with one video and one audio stream:

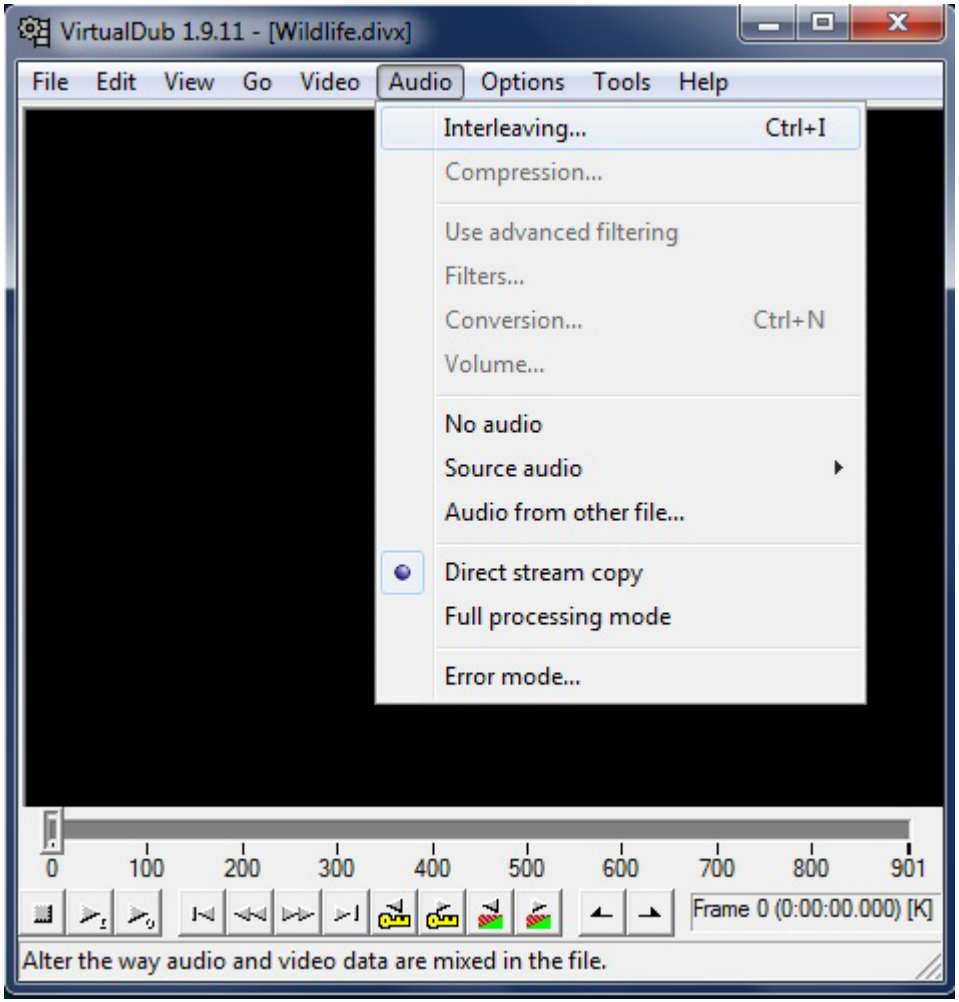


This represents the worst possible situation with regards to interleaving. During playback, the system will need to seek back and forth within the file continuously in order to load the audio associated with the video as time progresses. If the viewer were to jump to a specific point in the video it might be hard for the media player to quickly locate the corresponding point in the audio stream, causing an undesirably high seek recovery time.

Now consider the corresponding correctly interleaved file:

Here, audio chunks are interleaved within the file so they fall closely alongside the related sequence of video. As playback progresses seeking within the file is minimized, and in fact with appropriate buffering as provided by most devices seeking will not even take place. This leads to smoother playback performance. Because audio chunks are stored alongside the corresponding video chunks if a viewer skips to a particular point in the video the media player will likely locate the associated audio and resume playback more promptly.

Using VirtualDub, you can access the Interleaving options from the AUDIO menu.



Ensure that the “Enable audio/video interleaving” option is enabled.
The recommended audio preload is the default 500 ms.
The recommended audio interleave is every 1 frames.

TIP: the interleave options also present a method of adjusting audio/video sync by adjusting the “Audio skew correction” value, either positively or negatively in milliseconds. For example: if the audio was running two seconds behind the video a value of -2000 ms would correct for the delay. Conversely, if the audio was running one and a half seconds ahead of the video a value of 1500 ms would be required.

3 - VirtualDub contains two audio processing modes, Direct Stream Copy and Full Processing Mode.

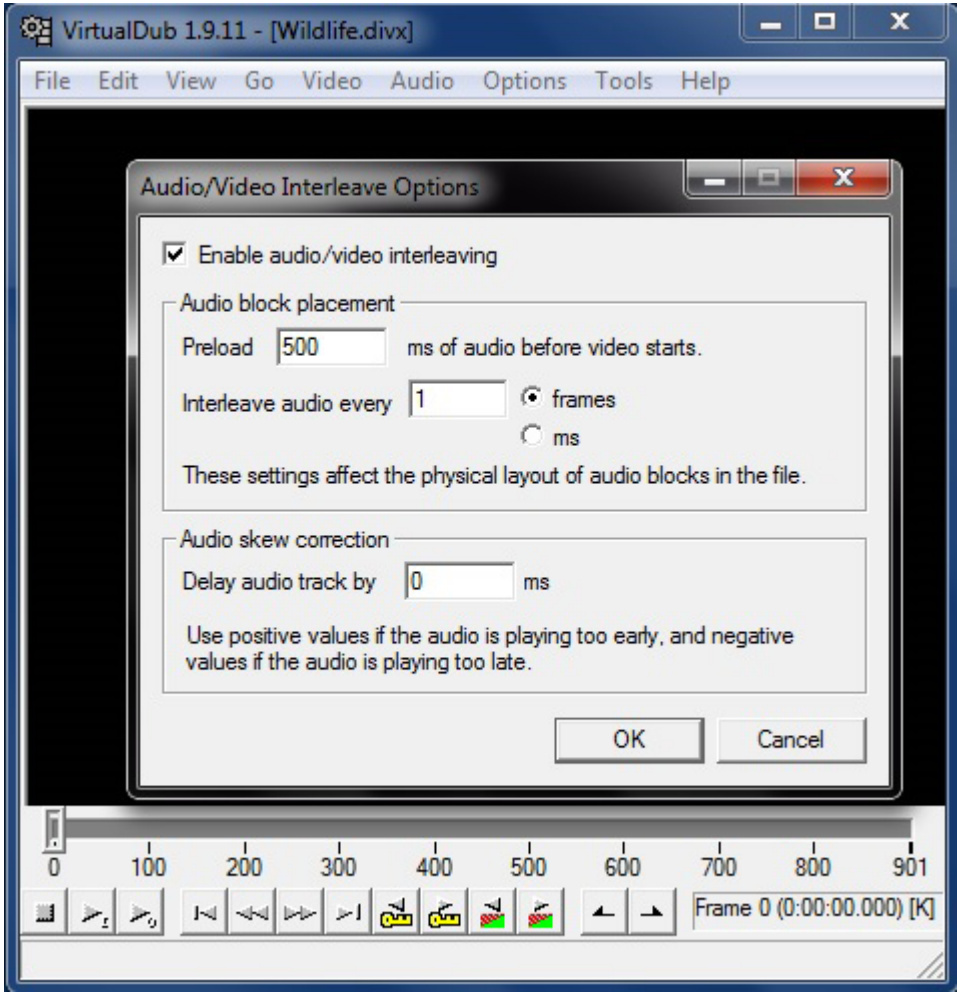
In Direct Stream Copy mode, no processing (other than interleaving) is performed on the audio stream. If you wanted to manipulate only the AVI file’s video stream, configure the audio mode as Direct Stream Copy in conjunction with Source Audio under the AUDIO menu. When you save the new AVI file, the original audio stream is copied from the source.

In Full Processing Mode the given audio stream is decompressed and fully processed when saving, including the application of any filters or compressors you have selected.

Both Direct Stream Copy and Full Processing Mode have exactly the same meaning when applied to the video stream, as opposed to the audio stream.

TIP: using the “Audio Skew Correction” (see note 2 above) in combination with Direct Stream Copy mode for both audio and video streams allows you to correct the audio/video sync of any pre-existing AVI file without requiring recompression of either stream.

4 - You can save a lot fo time when performing Multipass encoding if you enable audio processing only during the last pass you intend to save. It is wasteful to process audio on every pass because the AVI file, including any audio track, is overwritten each time.


VirtualDub 1.9.11 - [Wildlife.divx]
File Edit View Go Video Audio Options Tools Help
Audio/Video Interleave Options
Enable audio/video interleaving
Audio block placement
Preload 500 ms of audio before video starts.
Interleave audio every 1 frames
ms
These settings affect the physical layout of audio blocks in the file.
Audio skew correction
Delay audio track by 0 ms
Use positive values if the audio is playing too early, and negative values if the audio is playing too late.
OK
Cancel
0 100 200 300 400 500 600 700 800 901
Frame 0 (0:00:00.000) [K]

YOUR FIRST MULTIPASS

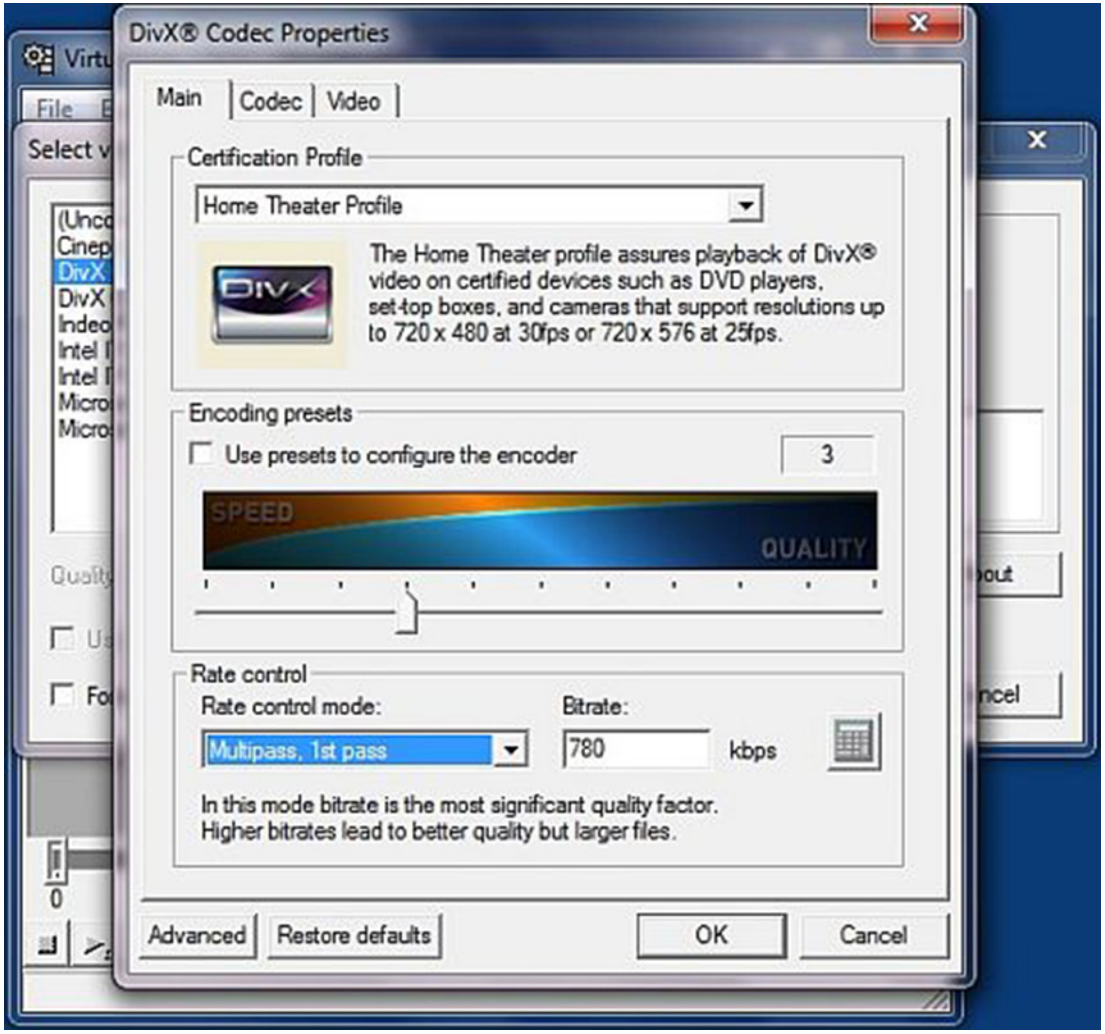
While 1-pass mode is fast and particularly suited to certain situations, Multipass encoding offers more consistent quality by allowing the encoder to first analyze the entire video before encoding it.

STEP 1

Load VirtualDub and configure it as you did in steps 1 through 5 of the “Your First DivX” section. But this time, set the Variable bitrate mode to “Multipass, 1st pass.”
When you save a video in Multipass, 1st pass mode the encoder will generate a log file that contains an analysis of the video but no actual video output will be generated.

STEP 2

Save your AVI file using a file name that helps you identify the video. You don’t need to use a separate file name for every pass that you perform, so as before simply choose a file name that fits the video.



STEP 3

Without closing VirtualDub, reconfigure the encode by setting Variable bitrate mode to “Multipass, nth pass.”

When you save a video in “Multipass, nth pass” mode, the encoder will use the analysis log from the previous pass to help it encode the video with a consistent quality but still targeting the bitrate you have specified.

The encoder will record an analysis of this nth pass with respect to the decisions it makes based on the previous analysis from the log file. This lets you feed the analysis log from one nth pass into successive nth passes and refines the encoding process toward the optimal quality level.

STEP 4

Save the AVI file using the same file name that you used for the 1st pass. It is normal practice in Multipass encoding to overwrite the output from the previous pass every time you save.

After completing your nth pass encoding, play the AVI file to see the output.

STEP 5

Without changing any settings, try saving the AVI file oe more time, again choosing to overwrite the previous file. The encoder will use the log file updated in the last nth pass to create an even higher quality video.

Although you might be tempted to continue running nth pass after nth pass there is of course a limit on the quality attainable at any given bitrate. Typically 98-99% of the optimal quality will be realized after 2 passes (1st, nth).

GLOSSARY

SECTION
04

TOPICS

1-Pass, 2-Pass, and Multipass
4K
AAC
AVI
Biterate, Framerate, and FPS
Codec & Container Formats
DLNA
Frames
H.264
HEVC/H.265
Macroblocks and Motion
MKV
Resolution v. Aspect Ratio

Curious about some of the key terms or acronyms that you saw in some of the other guides? Read on here to get information about core technologies used and created by DivX.

If after all of this we still haven't answered your questions, take a look at our online knowledge base for more FAQs, guides and troubleshooting tips at the DivX Support site. Or discuss topics with employees and other DivX users on the DivX Forums.

1-PASS, 2-PASS, AND MULTIPASS

1-PASS ENCODING

In 1-Pass mode the encoder will output a working video stream as it receives the source video. This is both the easiest and fastest method of encoding video while targeting an average bitrate, and is particularly suited to video capture applications where it is impossible to recreate the source video identically more than once. However, 1-Pass mode is the least consistent of all available modes in terms of video quality.

During 1-Pass encoding, if you are using the DivX Codec in a third-party application, it is possible to modify the birate in real-time by selecting the bitrate option from the bottom panel of the encoder feedback window. This feature is likely to be of particular interest when capturing from a live source. For example, if capturing from television you might want to reduce the bitrate during advertisements.

This mode is particularly useful when capturing from a live source and you desire control over the bitrate/file size. When capturing from a live source and attempting to maintain a consistent quality throughout the video you should use 1-Pass Quality Based mode. When working from static sources (for example re-processing existing stored video) you will achieve more consistent quality by using Multipass mode.

2-PASS/MULTIPASS ENCODING

As opposed to 1-Pass encoding where all the encoding is done in one single pass or on the fly, in 2-Pass or Multipass (2 or more passes) encoding the file is analyzed completely during the first pass and a sort of intermediate or temporary file is created then the second pass is used by the encoder looks up the intermediate file and uses that information to decide how to allocate all the bits. So the actual encoding takes place in the second pass with the information of having fully analyzed the entire file beforehand.

DivX uses a rate control algorithm to vary the bitrate throughout the video to achieve a consistent quality while targeting the specified average bitrate. To do this effectively, the codec has to be able to examine the entire video in order to determine where bandwidth should be allocated before it spends any bits at all.

At a given file size, 2-Pass encoding usually has better quality than single pass encoding but it will take longer to encode the file. This also has the potential to give smaller files with better quality at lower bitrates than the same file converted in single pass. Single pass can also have quality but with less control over the output file size.

One of the reasons this is used is the variation in the scenes during a video, especially in the example of movie. There might be long, black scenes in one area and complex scenes with action or lots of movement in another. In a 1-pass encode, the exact same data is used on both these scenes. When using multi-pass encoding, which is made possible through Variable Bit Rate, the encoder has fully analyzed the entire file before encoding so it knows that some sections need a lower bitrate and then others can use more for a better overall quality by a more efficient use of bitrate.

4K

4K refers to video resolutions whose horizontal dimensions are at least 4,000 pixels. Normal high definition video has a horizontal resolution of 1,920 pixels (for a 1920x1080 resolution, also referred to as 1080p), so a video with a resolution of 4096x2160, for example, far exceeds the resolution of current 1080p HD video.

There are a few common 4K resolutions depending on the reasons they are used, but not a single standard. In theatrical video, the Digital Cinema Initiatives specification uses 4096x2160. Many consumer electronics use this as well. A more common trend is to use resolutions of 3840x2160; although technically less than 4,000 horizontal pixels, it is what the Consumer Electronics Association considers “Ultra High-Definition” or “Ultra HD”.

4K resolutions are often discussed when talking about HEVC video compression, which can support resolutions up to 8K Ultra HD, or 8192x4320, but the two are not necessarily tied. While HEVC supports these higher resolutions very well, a 4K resolution can also be used in H.264 video compression, just as a video with a 1080p resolution could be compressed with either H.264 or DivX (ASP) technologies.

AAC

Advanced Audio Coding (AAC) is the preferred audio format for high definition videos and is a substantial improvement on the well-known MP3 format. AAC has become the standard for high-quality digital audio and DivX Plus video supports AAC audio tracks with 5.1 channel surround sound to deliver a cinematic experience with your home theater setup.

Given the same file size, AAC audio tracks can achieve better sound quality than MP3 audio tracks so you can achieve matching quality while reducing the data rate and audio stream in your DivX Plus file. This will take up less space than before, making for smaller files or the option to encode video with higher quality. Where storage or bandwidth is constrained, AAC’s High Efficiency modes provide technologies like spectral band replication that allows you to come close to CD-quality sound at roughly half the data rate that MP3 would require.

AAC audio is much more efficient to decode than other audio formats, which means that it leaves more CPU power to make sure your video plays smooth and stutter-free. The AAC standard is the perfect complement to the H.264 video technology that powers DivX Plus Software, providing high definition audio to match the HD video on your computer, in your living room or on the go.

AVI

AVI has become the most popular container file format used for watching video on the PC. AVI files can hold different types of video and audio streams inside, and with the help of DivX video compression technology, they can display incredible video quality while maintaining a small file size.

AVI is the container file format used by DivX video versions 3 through 6. It has become the most popular file type for sharing high-quality video on the Internet, and it's common to see these files with either an .avi or .divx extension. The AVI file container itself has been in use since the days of Windows 3.11, with various modern extensions being added through the years, including by DivX. AVI files support a range of video and codecs, and many AVI files shared today are DivX files — that is they specifically contain DivX video paired with MP3 or AC3 audio.

AVI is an acronym for 'Audio Video Interleave', which describes the manner in which the audio and video streams are broken down into 'chunks' of data and arranged so that audio and video chunks representing any particular moment of time appear near each other in the file. This allows the file to be read linearly during playback, which would not be possible if streams were written in their entirety out one after the other. This makes a critical difference for optical storage solutions like CD, DVD, and Blu-ray, where seeking back and forth can be extremely slow.

WHAT'S THE DIFFERENCE BETWEEN .DIVX AND .AVI?

Technically speaking, .divx files are based on the .avi container, but the DivX Media Format allows for extra features like XSUB subtitles or chapter titles. DivX Certified devices will play DivX video regardless of whether they're in a .divx or .avi container.

BITRATE, FRAMERATE, AND FPS

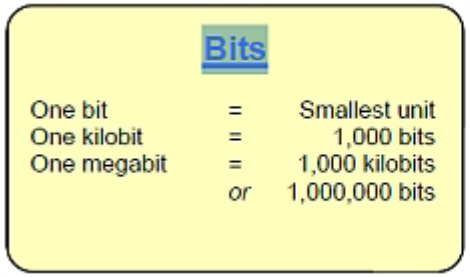
The Bitrate indicates the size of a video or audio stream over time, usually calculated in Kilobytes per second.

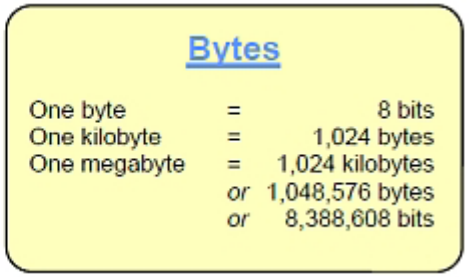
In a computer the minimum unit of storage is one bit, which can represent two values, 0 or 1, and hence computers use the binary number system (base 2) as opposed to the denary system (base 10, 0-9) that humans use. When several bits are combined they can be used to store more complex data, similar to adding more digits in denary in order to store larger numbers.

For practical purposes the smallest unit of storage software normally works with is actually one byte. A byte is composed of eight bits.

The bitrate describes how many thousands of bits per second on average the encoder should aim to spend when encoding the video. Given a video of any fixed duration encoding at a higher bitrate will lead to larger file sizes (and better quality video), while conversely encoding at a lower bitrate will lead to smaller file sizes (but lower quality video).

A key aijm when encoding is to achieve a desired file size; after all the prime reason for video compression is to reduce storage requirements. Given the length of a video and a target file size, it is possible to determine a suitable bitrate in just five simple calculations.





The bitrate calculated is the average bitrate for the video. DivX may choose to vary the actual bitrate throughout the video as it encodes, a technique known as variable bitrate encoding. Since not all sequences in a video are equally complex in terms of image and motion, it is impossible to maintain a constant bitrate throughout the file without introducing substantial quality differences between frames. Instead, DivX distributes the total bandwidth as appropriate with the goal of maintaining a consistent overall quality that permits it to meet the average bitrate. It does this via the rate control, which will be introduced shortly when multipass mode is covered in more detail.

The Frame rate tells us how many images of a movie are displayed for every second a movie is played. A high frame rate would therefore have more frames per second, and a larger file size, for the same film of a lower frame rate. Frame rate is measured in ‘frames per second’ or fps. In the NTSC system, the frame rate is usually about 29.9 fps, and in PAL it is usually 25 fps.

CODEC & CONTAINER FORMATS

When you hear people talk about the format of a digital video, they are might be referring to either the container file or to video or audio codecs.

The “container format” is like the wrapper that holds both the video and audio streams together. The video and audio would be two separate entities that don’t know how to play together without the container. The container not only holds these two together, but contains enough data to make sure they are both encoded and decoded together as a single, synchronized unit.

A “codec” is short for ‘compressor-decompressor”, or sometimes ‘coder-decoder’. In order to explain why this is important to digital multimedia, let’s first take a step back. In their raw form, digital videos are very large. This not only becomes a problem with storage, but can particularly pose a problem where playback is concerned. Large files require beefy processors and a lot of memory—more than most people have on their personal computers. In order to resolve this problem, computer geniuses developed fancy algorithms to “compress” the digital video files down to a more manageable level.

Digital video is compressed to economize on space, whether it’s bandwidth or media, and a codec does the job of encoding (squeezing all that raw data into a compressed, transportable form) and decoding (reading and playing the data that has been compressed). They remove a lot of extra data that isn’t too important, while retaining the most important parts of the video in a condensed form. (By any chance do you remember Mary Poppin’s mysterious bag that held more in it than seemed physically possible? It’s kinda like a high-tech version of that…) By improving the techniques upon which the codec is based, we’re able to transmit higher quality video using the same bandwidth as before. Typically both the encoder and decoder will become more complex, but this is okay because computers are always getting faster.

So, going back to the concept of a codec, compression is used to make the video file manageable, and a de-compressor is used to unpack its many little parts, allowing software or electronics devices to play it back beautifully on your screen. There are many video and audio codecs out there. You might already be familiar with the format called MPEG-2, which is used for DVDs. The MPEG-4 format is another type of compression, like a distant cousin that can make videos even more compact than its MPEG-2 counterpart. The original DivX codec is a specific compression format based on MPEG-4 Part 2 (ASP) standards. These videos are packaged in an AVI container (or the DIVX container, which is a type of AVI) along with MP3 or AC3 audio. In 2009, DivX, Inc. released their own version of the H.264 codec based on MPEG-4 Part 10 (AVC) standards for optimum high definition video. The H.264 videoare packaged in a MKV container along with AAC audio.

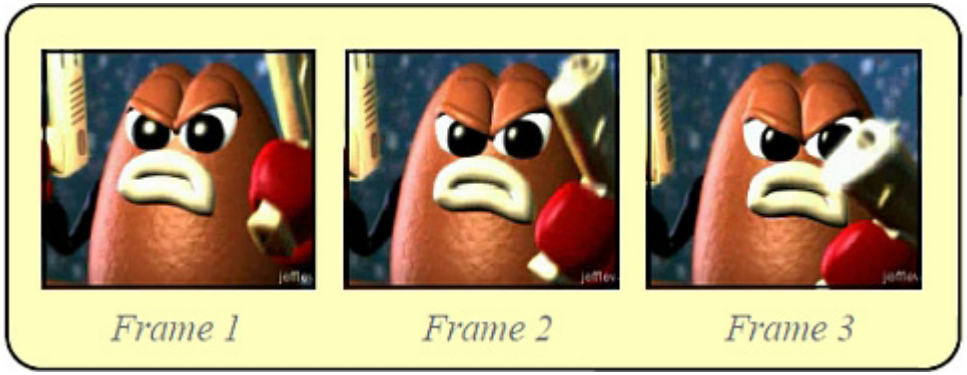
DLNA

DLNA (Digital Living Network Alliance) is a standard for sharing various digital media throughout devices such as personal computers, TV sets, mobile devices, etc. It is based upon the UPnP (Universal Plug and Play) protocol, which allows easy and seamless access and sharing of media content among networked devices. It is estimated that more than 9,000 products on today's market are DLNA Certified. DivX Plus Player uses DLNA to enable high-quality video playback of your collection by streaming the content to DLNA Certified devices—on your computer, throughout your home and on the go.

FRAMES

At its most basic, a video is a series of pictures shown one after the other in quick succession. When the pictures are played fast enough the image appears to move. Each picture in a video is called a frame and the speed at which they are shown is the frame rate, given in frames per second, or fps.

If we were to slow a video down to such an extent that it was possible to see individual frames it would become evident there is generally little change in the picture between adjacent frames. Frames in sequence would appear very similar to each other, objects in each consecutive frame moving position only slightly. DivX takes advantage of this behavior as a means to compress the data requires to store a video.



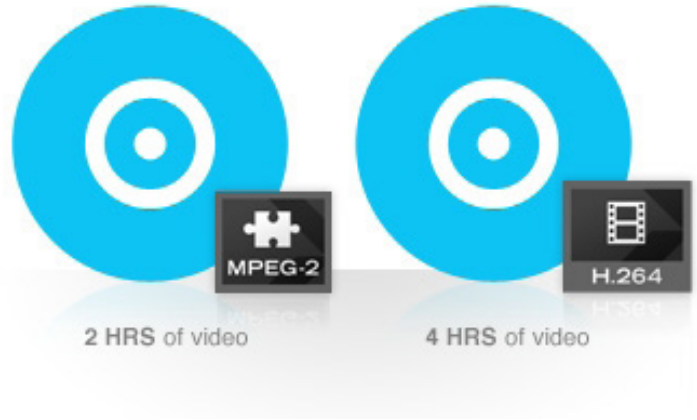
H.264

H.264 standard compresses a digital video file so that it only uses half the space of MPEG-2 (the DVD standard), to deliver the same quality video. This means you can enjoy stunning HD video the way it was meant to be seen without sacrificing speed or performance.

Video for DivX Plus is based on the H.264 standard, a state-of-the-art digital format for efficiently encoding high definition video. Why is H.264 so great? To make a long story short, H.264 encompasses a collection of powerful features that enable the delivery of high-quality video at very low data rates. Using DivX Plus Software you can create, enjoy and share stunning HD video in the same ways that you can with standard definition DivX video. This includes creating personal libraries on your hard drive, burning files to disc or transferring them via USB drives to your DivX Plus devices, or even serving them to visitors on your web page using the DivX Plus Web Player.

The H.264 standard supports the notion that different categories of decoder device may have individual requirements and capabilities. For example, compared to a desktop computer, mobile devices may have lower display resolution, less internal memory and processing power, and a desire to maintain battery life. By selecting the H.264 bitstream features used during content creation, we can significantly influence the playback requirements. DivX Plus HD represents a carefully selected balance of features developed in collaboration with our manufacturing partners that enable both strong compression and interoperability across a huge range of device categories including DVD players, Blu-ray players, digital TVs, set-top boxes and more.

An H.264 encoder reduces the amount of information required AAC: to reproduce the input video by exploiting redundancy in the pictures it's encoding, both spatially (within the same picture) and temporally (between pictures). Temporally, an encoder processes each frame, subdividing the picture into a grid of blocks and searching previous or future frames for each block for matching texture, a technique known as motion estimation. Once a suitable match is found, a decoder can



reproduce the texture of that block using only a vector pointing to the matching reference texture along with a little information to correct any small texture differences. Spatially, where motion estimation fails to find suitable matches, an encoder can use the texture of nearby blocks within the same frame to predict the block texture and store only the difference between the prediction and the actual block texture. This is more efficient than storing the complete texture directly but still more costly than motion estimation. H.264 encoders act as "lossy" compressors; their goal is not to reproduce the original picture exactly but instead to choose the optimal means to reduce the data rate while preserving visual quality as best as possible. With suitable settings differences can be unperceivable even when compression over raw input approaches 100:1.

The H.264 standard offers substantial performance improvements over its predecessors. For example, a DVD can hold one two-hour movie compressed using MPEG-2 encoding (typical for DVD video) but four hours of video using an H.264 codec. H.264 encoding used by DivX Plus is even more efficient than the popular DivX 6 codec, which is based on the MPEG-4 ASP standard, H.264's predecessor.

To learn more about H.264, visit our website.

HEVC/H.265

HEVC, or H.265, is the standards-based, next-generation codec successor to H.264, and is designed for encoding (converting) and decoding (playing) video streams that can be stored and delivered more efficiently and economically. HEVC can deliver the same visual quality as H.264 with about half the bitrate. Additionally, HEVC can encode resolutions up to 8K at frame rates as high as 300 fps. This means consumers will get more video at higher quality without killing bandwidth or hard disk space.

By extending this technology to the DivX® ecosystem, both content distributors and CE manufacturers will be able to benefit from this superior video compression. With over 1 billion software downloads and 1 billion DivX Certified® devices, the ecosystem capabilities include consumer and professional content creation, protected content delivery, and a certification program that ensures your DivX HEVC videos will play on your DivX HEVC devices.

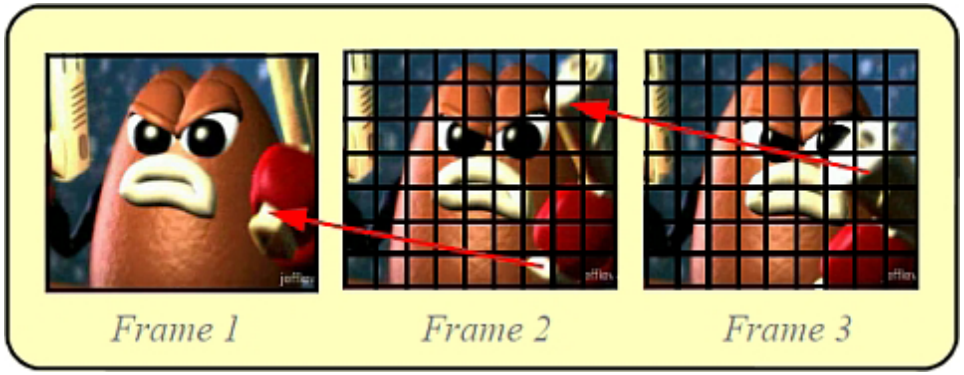
MACROBLOCKS AND MOTION

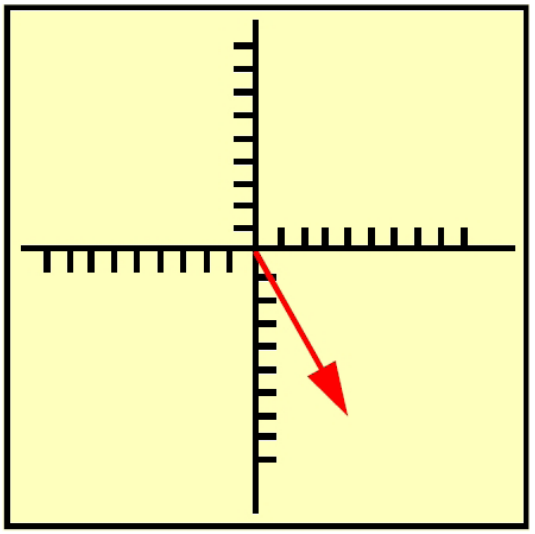
The encoder divides a frame into a grid of blocks, called macroblocks, and attempts to track the motion of each macroblock in the current frame back to a matching area of picture in the previous frame. This process is known as the motion search.

When the encoder finds a matching area for a block in the previous frame its position is recorded by use of a vector. A vector is simply a numerical representation of direction and magnitude. For example the vector (4, -7) might mean right 4 units, down 7 units.

Because these vectors happen to represent the movement of a macroblock they are called motion vectors. In the illustrations the red arrows represent the motion vectors.

Storing the motion vector of each block from frame-to-frame allows DivX to recreate much of each new frame from the last using far less data than if each block were stored as a complete image. The process is similar to cutting up one frame into little pieces, then maneuvering them like a make-shift jigsaw puzzle using motion vectors in order to recreate the next frame. Of course the resulting picture is not perfect and DivX has to store some additional data to correct for the difference (known as the residual). Even so, recreating the picture using motion vectors and residual consumes far less storage than recording the entire image for every single frame.





Vector (4,-7)

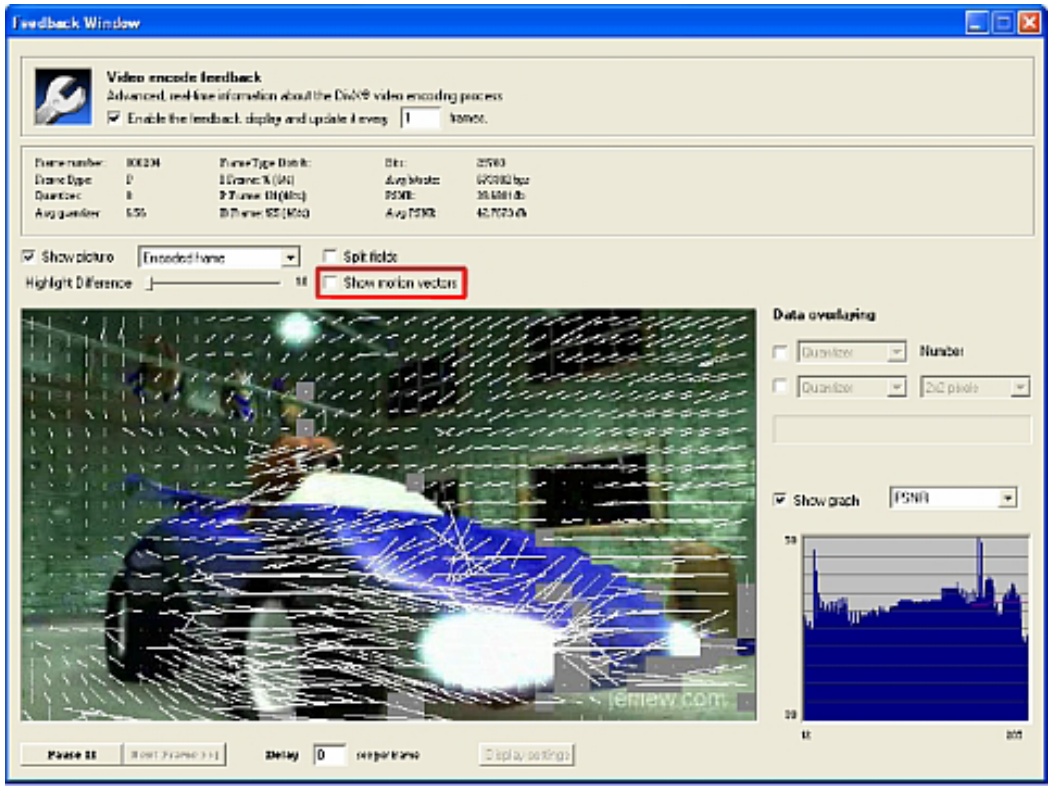
The process of tracking blocks back to matching areas in the previous frame (known as the reference frame) is called the motion search, or motion estimation. The frame recreated from a reference frame by application of motion estimation is known as the compensated frame.

You can see the motion search in action using the encoder feedback window of the DivX Codec (e.g. in third party apps like VirtualDub).

While encoding set Show picture to Compensated frame and turn on Show Motion Vectors.

The white lines overlaid on the compensated frame represent motion vectors returned by the motion search, tracking each block back to a matching area in the reference frame.

Where blocks area gray in the compensated frame, the motion search failed to find a suitable match in the reference frame. These blocks will be encoded as image data instead of motion vectors.



MKV

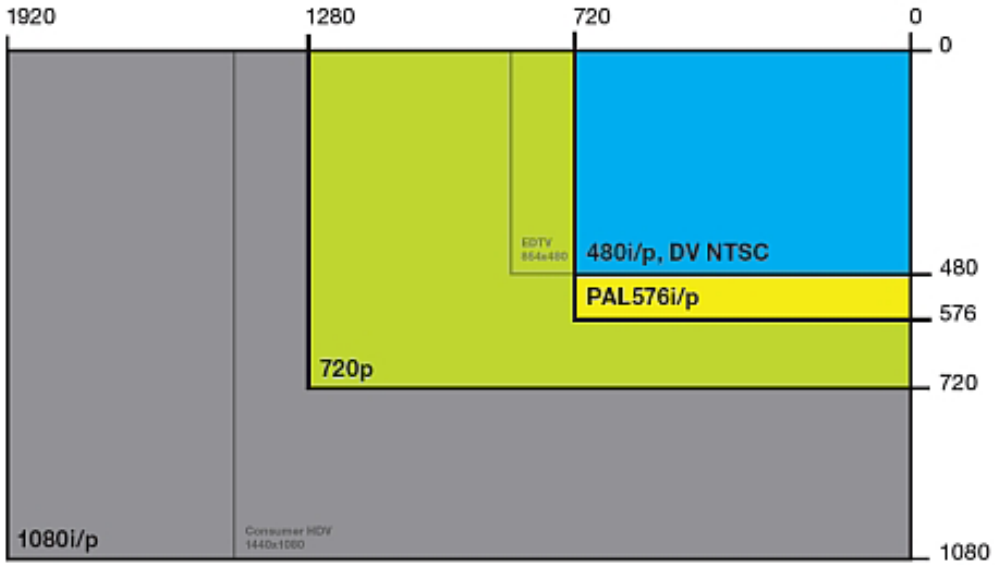
MKV is a flexible, open standard video file format that has quickly become the preferred file extension for high definition video on the Internet. It natively supports features like alternate audio tracks, multilingual subtitles and chapter points, as well as rich metadata authoring including cover art, ratings, descriptions and more. These features made it the perfect choice for DivX Plus™ HD video, allowing us to create an ideal viewing experience.

RESOLUTION V. ASPECT RATIO

Resolution is how the video world describes the number of pixels (the tiny dots of color that make up an image) in each dimension (height and width) of the image being displayed. If the resolution of a video is written as 720x480, for example, this means the images of the video are made up of rows containing 720 pixels across (from left to right) and columns containing 480 pixels from top to bottom.

In standard definition video, there are two different standards for resolutions: NTSC and PAL. These standards originated in the broadcast television days, so they naturally carried over into the beginning of the digital video era. When applied to a standard definition DVD, a NTSC video would have a resolution of 720 x 480 pixels and a PAL video would have 720 x576 pixels. In both cases, the resulting aspect ratio could be 4:3 or 16:9... More on that later.

Digital video standards came together around the same time as the rise of high definition television and video, so the old PAL and NTSC systems were able to better synchronize their standards. In high definition video, the standard resolutions are 720p (1280 x 720 pixels) and 1080p (1920 x 1080 pixels). In HD video resolutions, the aspect ratio is 16:9, or widescreen.



Aspect ratio in digital video refers to the fraction of the height and width of pixels measured from the video's resolution. This does not measure the actual amount of pixels or length, so two videos with different resolutions could have the same aspect ratio. The most common aspect ratios are 4:3 (universally used for standard-definition) and 16:9 (universally used for high definition).

The Pixel Aspect Ratio, or PAR, measures the actual height and width of the pixels. The Display Aspect Ratio, or DAR, refers more specifically to the shape of the image frame in a video. Unlike PAR, this can result in a different shape than the pixels would otherwise indicate. One common reason this is used is in Anamorphic encoding, where the pixels of a video are stretched over a larger frame size when displayed. So a digital video file that has a resolution of 720x480, but is flagged with a DAR of 16:9, will play back in widescreen without changing the pixel count. This is often what causes videos to show with letterbox or pillarbox.

Incorrect DAR
for standard definition
(16:9 video on 4:3 display)

Correct DAR
for widescreen
(16:9 video on 16:9 display)

Letterbox occurs when
DAR is wider than display

Pillarbox occurs when
DAR is narrower than display

THE END

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DivX, LLC
4780 Eastgate Mall
San Diego, CA 92121
USA